

Crime Scene Reconstruction

Based on the Interpretation of Physical Evidence

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Disclosures

I don't have any
financial disclosures



Interpretation

The act of explaining, reframing, or otherwise showing your own understanding of something

How do individuals develop their own understandings?



Introduction

- The investigation and handling of a crime scene is crucial to the outcome of any criminal investigation
- Two critical components:
 - Has to be recognized as a crime scene
 - Has to be secured/controlled



Introduction

- The quality and quantity of information available as scientific evidence is based on how secured and controlled the crime scene is.
 - No security
 - Partial security
 - Total security
- Level of contamination
 - Scenes change minute by minute
 - Entry of personnel



“What part of ‘secure the crime scene’ don’t you understand?!!”





Introduction

- Crime scene reconstruction relies on the quality and quantity of the scientific evidence as it relates to the scene
 - What is it? What purpose did it serve?
 - What changes have been made to the scene?
 - Evaluation of evidence
 - Relationships between other items of evidence
 - Relationships to the scene





Introduction

- The processing of crime scenes, the analysis of evidence and the reconstruction of a crime scenes are all defined by the interpretation of physical evidence.
 - Ambiguous evidence
 - Interpreted in more than one way depending on a variety of subjective influences.





What is Evidence?

- *Evidence – anything that tends to prove or disprove a fact in contention*
- Two types of evidence
 - *Testimonial – evidence that is given by an individual which helps in understanding motives and/or explaining those items found at a crime scene.*
 - *Physical – specific items found at the scene that are collected for subsequent analysis and presentation*

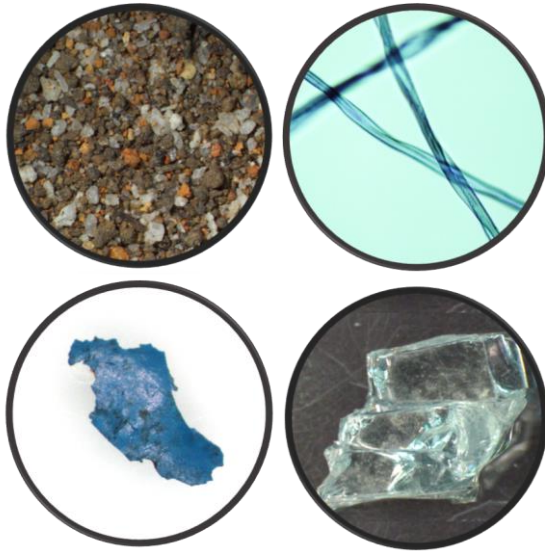
Gardner, R. M. (2005). *Practical crime scene processing and investigation.*





Anything can be physical evidence

Bank robbery note, drugs/drug paraphernalia, biological fluids



Trace evidence, arson evidence, firearms related evidence



Fingerprints, shoeprints, tire tracks, tool marks



Whorls



What is the Value of Physical Evidence?

A crime was committed

- Elements of the crime
- Provide leads
- Eliminate suspect(s)
- Identify persons associated with a crime

Associations or linkages between victims, suspects, objects and crime scenes

- Victim(s) to the scene
- Suspect(s) to the scene
- Victim(s) to suspect(s)
- Victim/suspect to the object
- Object(s) to the scene

What is the Value of Physical Evidence?

Crime Scene Reconstruction

- Analyze the timing of events
- Sequence events
 - Linking events
- Layering
 - Top vs. bottom layers



Seems simple and straightforward....

However.....



Interpretations matter

Dr. Paul Kirk wrote “Physical evidence cannot be wrong; it cannot be perjured; it cannot be wholly absent. *Only in its interpretation can there be error.*”

Kirk PL. Crime Investigation. Interscience Publishers, Inc., New York, NY (1953)





Interpretation of Physical Evidence

- Interpretation

- The act of explaining, reframing, or otherwise showing your own understanding of something.

- Content

- What is it?

- Context

- Relationship(s)

Admissibility



Interpretation of Physical Evidence

- Admissibility of the Evidence
 - The item of evidence must be one that might rationally affect the decision or outcome of a case.
 - Relevant:
 - a). Probative - it has the tendency to make a fact more or less probable that it would be without the evidence;
AND
 - b). Material - the fact is of consequence in determining the action
 - Reliable:
 - The jury must be able to weigh it properly in reaching a decision about guilt or innocence





Interpretations of Physical Evidence and Its Use in Crime Scene Reconstruction:

Crime Scene Investigators





Interpretation of Physical Evidence: Crime Scene

- Crime Scene Investigation
 - Respond and gather information
 - Observe and assess the scene
 - Documentation of the scene
 - Evidence is recognized and identified
 - Evidence is collected
 - Evidence may be processed (depends on policies)
 - Evidence is properly packaged and preserved
 - Evidence is submitted to the lab





Observe and Assess the Scene

Observations and assessments lead to hypotheses and testing with each piece of physical evidence

- Observation is the most basic aspect of crime scene processing
 - Condition of the scene
 - Integrity of the crime scene
 - Level of control/secure
 - Types of evidence within the scene
- Assessment of the scene
 - “Game plan”
 - Walk-through of the scene
 - Entry/exit







Evidence is Recognized and Identified

- How do investigators recognize physical evidence?
 - Information provided from first responders
 - Scene assessment and observations
 - Content
 - What evidence is present to be found
 - Where to look for the relevant evidence
 - Context
 - Relationship(s)
 - Items look “out of place”
 - Answers the who, what, when, where, why and how
 - Items that “cause you to stop and think”





How important is evidence recognition?

- Critical
 - Without it, evidence will not be examined
 - Without it, the value of forensic evidence is compromised
 - Without it, the outcome of the criminal investigation is in jeopardy
- Only one opportunity
 - Little or limited information





Evidence is Collected from the Crime Scene

- Context of the scene is forever changed
 - In situ documentation
- Impact crime lab examinations?
 - How it's collected
 - How it's packaged and preserved





Interpretation of Physical Evidence

- Relevant
 - Fits the type of alleged crime
 - May contains additional information
 - Additional physical evidence
 - Answers the who, what, when, where, how and why
- Reliable
 - Able to be understood and trusted in a court of law



The Chicken Bone and the TV

Facts and Circumstances

- An older female (97 y/o) lived in the residence by herself
- The residence is right next door to a Popeye's Chicken.
- Once a week a home healthcare professional would come to the home to check on her and help her with odd jobs around the house.
- She would bring her 2 pieces of chicken from Popeye's Chicken
- The 97-year old female would eat a piece of chicken and save a piece to eat for later.

Facts and Circumstances

- A family member had been unable to contact her and notified the police.
- Upon police arrival, it was discovered that the house had been ransacked, chairs were turned over, drawers were left open and doors were ajar.
- And.....there was evidence; silent mute witnesses to what had happened.





















POPEYES















Evidence

- Cord from the phone in the living room had been ripped from the phone and the wall and had been used to strangle the victim.
- The door to the microwave was found open; an empty bag of Popeye's Chicken was found on the table in the kitchen.
- There was an empty fast-food cardboard container and an empty soda can located on the kitchen counter.
- A chicken bone had been located in the victim's bedroom on top of a bath and body lotion/bubble bath set.
- A T.V. was found located in the backyard next to the chain link fence which bordered an unpaved alley.

Results

- The chicken bone was processed for DNA and a male genetic profile developed.
- The genetic profile was uploaded into the CODIS database, but no match.
- The T.V. found in the backyard was processed for latent fingerprints.
 - Latent fingerprints were developed; however, they were not AFIS quality.
- The prints that were lifted from the crime scene (from a suitcase handle, a shoebox and the microwave door) were not suitable for AFIS or comparison purposes.

Results

- The case went unsolved for almost a year.
- A story was published in the local newspaper about a year after the offense happened.
- A law enforcement officer, after reading the story, contacted the Homicide detectives.
 - The officer was investigating attacks on elderly women in different parts of the state and wanted to know if the man that killed the victim might be a suspect in those cases.

Results

- That inquiry prompted the detectives to run the DNA from the crime scene (the chicken bone) in the CODIS database and this time, there was a match.
- The suspect had provided a buccal swab (DNA sample) when he was arrested and had plead guilty to unrelated burglary charges and an unlawful possession of a firearm by a felon.
- When Homicide detectives contacted him, they obtained a buccal swab from him and major case prints.
- The prints he provided were then compared with the prints recovered from the T.V. found in the backyard, and resulted in an fingerprint hit.



Interpretations of Physical Evidence and Its Use in Crime Scene Reconstruction:

Laboratory Scientists





Interpretation of Physical Evidence: Lab Examinations

- Receive information
 - A request for examination
- Evidence is retrieved /checked out
 - Documentation
- Examinations are performed
 - As per request





Concerned with Bias

- Forensic experts are too often exposed to irrelevant contextual information
 - Extraneous information
 - Suspect's ethnicity or criminal record
 - Eyewitness identifications and confessions
 - Give rise to conclusions that are incorrect or overstated.
 - Only relevant information should be known to the appropriate expert

Dror, I.E., *"Biases in Forensic Experts"*



Concerned with Bias

- Biases stemming from the crime scene?
 - What is collected and submitted as evidence can and does have an impact on the later examination.....
 - Quantity of evidence collected
 - Abundance vs. non-existent
 - Quality of evidence collected
 - Evidence dynamics – any influence that changes, relocated, obscures or obliterates physical evidence, regardless of intent.

Chisum, W. J., & Turvey, B. E. (2011). *Crime Reconstruction*.



Concerned with Bias

- Is it scientific evidence?
 - Evidence that has been tested, analyzed, researched, studied, or other evidence based on the expertise of professionals in the relevant area, that has been conducted and evaluated in an objective manner by individuals qualified to do so, using procedures generally accepted in the profession to yield accurate and reliable results.



Consultation with Detectives, Investigators, Prosecution

- Biases in communication?
 - “Debriefing” with the detectives
 - Information regarding evidence collected and the types of tests that can be performed
 - “Debriefing” with scene investigators
 - Information regarding the evidence collected and its relationships to other evidence and to the scene
 - “Debriefing” with prosecutors
 - Information regarding the questions surrounding the examination of the evidence





Interpretations of Physical Evidence and Its Use in Crime Scene Reconstruction:

The Courts





Interpretation of Physical Evidence: Lawyers

- Increased reliance on the attorneys to present evidence
- Evidence is examined by the lab and results are reported by means of a report
 - What do the results mean?
 - What is the impact on the case?
 - Asking of appropriate questions in relation to the results





Interpretation of Physical Evidence: Expert Witnesses

- Must be an advocate for the evidence
- Be careful not to exert too much influence in determining the facts
- Be cautious in explaining conclusions used in forensic science examinations properly





Interpretation of Physical Evidence: Courts

- Courts and juries reluctant to convict in the absence of evidence
 - Absence of evidence does not mean evidence of absence
 - “CSI effect”



Crime Scene Reconstruction



- The process of including or eliminating the events and actions that occurred at the crime scene through:
 - Analysis of the scene
 - Examination of crime scene patterns
 - The location and position of the physical evidence
 - The laboratory examination of the physical evidence
 - Study of additional related information
 - Logical formulation of a theory

Chisum, W. J., & Turvey, B. E. (2011). *Crime Reconstruction*.



Physical Evidence and Crime Scene Reconstruction

- Foundations of crime scene reconstruction are based in the basic principles used in the forensic examination of physical evidence.
 - Proper recognition, documentation, collection, packaging, preservation.
 - Locard's Principle of Exchange
 - Associations based on the evidence
 - Lack of transfer important in crime scene reconstruction
 - Reconstructions start from the documentation and recognition of the evidence

Chisum, W. J., & Turvey, B. E. (2011). *Crime Reconstruction*



Physical Evidence and Crime Scene Reconstruction

- Recognition of the strengths and limitations of available physical evidence are an important part of crime scene reconstruction
 - Strengths:
 - Locard's Principle of Exchange = making associations
 - Life leaves evidence
 - Limitations:
 - Evidence dynamics
 - Limitations involve a recognition regarding the integrity of the evidence

Chisum, W. J., & Turvey, B. E. (2011). *Crime Reconstruction*

In Summary

- The proper interpretation of scientific physical evidence includes those items/objects that have been tested, analyzed, researched, and studied or...
- Other evidence based on the experience of professionals in a relevant area, that have been conducted and evaluated in an objective manner by individuals qualified to do so, using procedures generally accepted in the profession to yield accurate and reliable results

In Summary

- It is important to recognize items of evidence, both for content – what the item is – and even more paramount, context – the relationships that the items of evidence have with other items of evidence as well as with the scene itself.
- It is also important to understand that the quality and the quantity of the evidence is important in that these are the heart of a crime scene reconstruction that begins at the crime scene and continues on through the entire chain, from the lab scientists to the courtroom.



In Summary

- It is also important to not overlook what at first may be meaningless; if it causes you to stop and think, it may be significant.
- Although we have different ways of looking at the same evidence – its important to allow the evidence to speak for itself.



Thank You!!

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Drugs, Poker and Death

Facts and Circumstances

- A young female was last seen on a Friday afternoon near the SMU college campus
- She had been attending college but had been struggling
 - Partying and drugs
 - Hanging around the wrong people
- She was discovered the following Monday morning deceased
 - Portable toilet on a construction site outside of Waco, Texas
 - Body was decomposed
 - Clothes on, jewelry on
 - Wrapped in a blanket

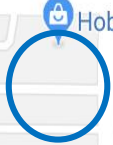
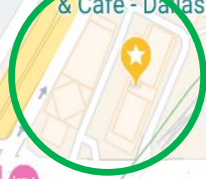
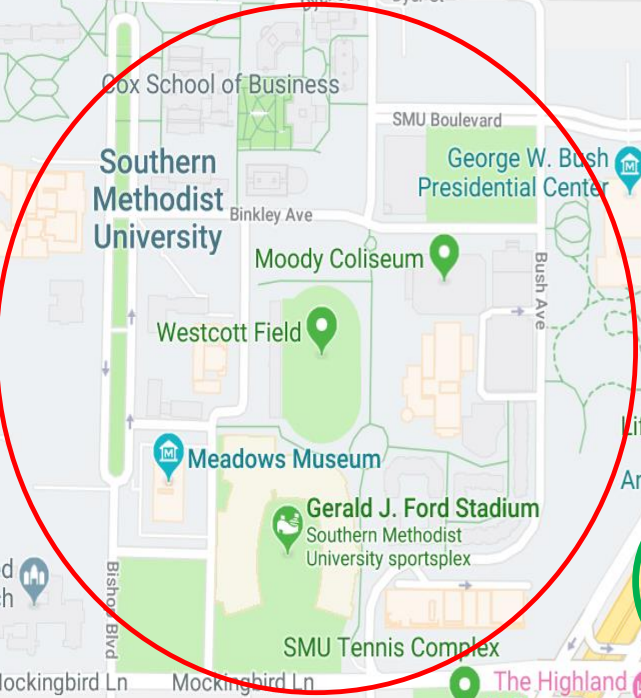
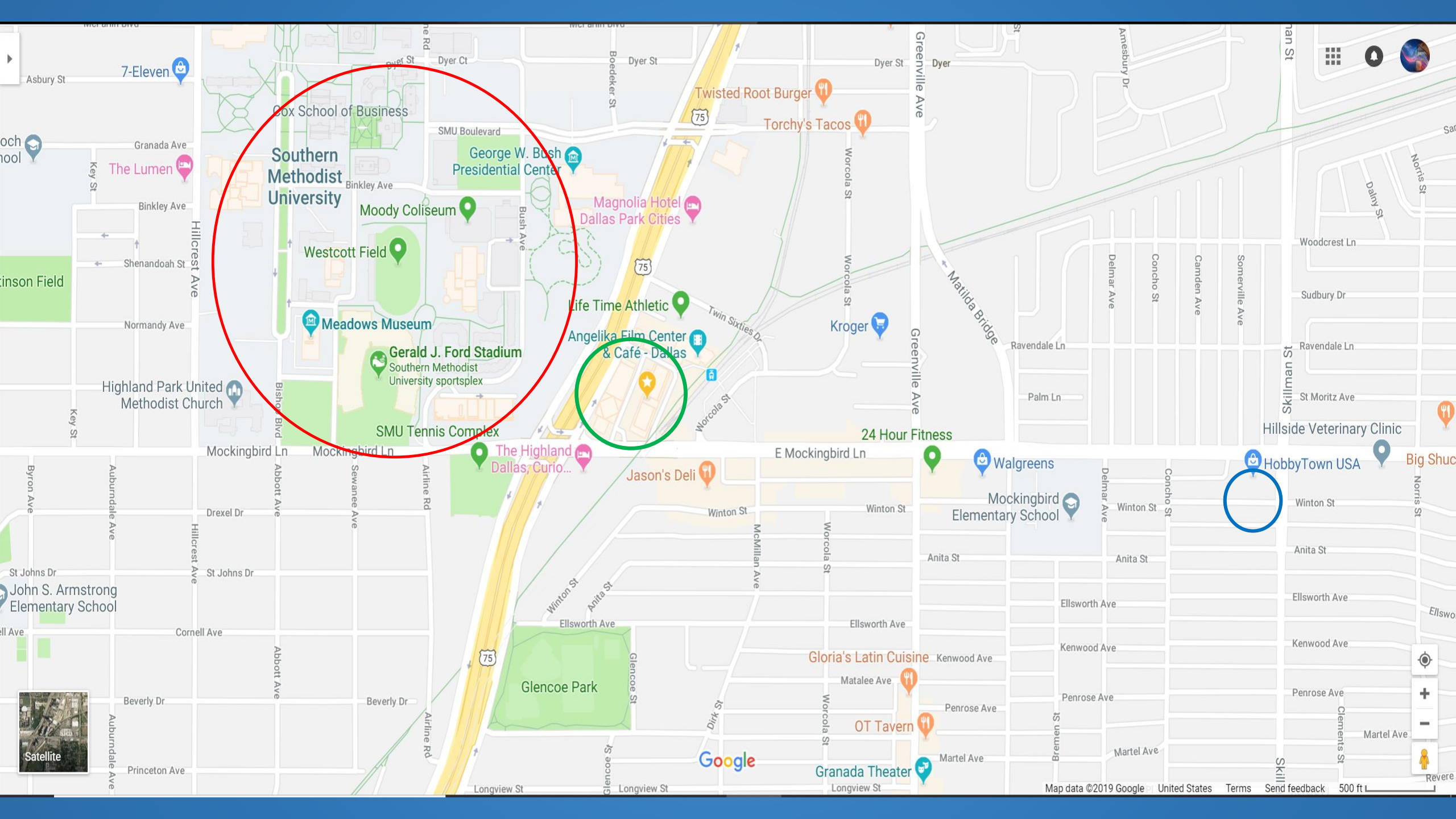


Facts and Circumstances

- The young female was last seen hanging out with her drug dealer
 - He employed her to serve drinks at his poker parties and would pay her in both cash and drugs
 - He would also render her unconscious with those drugs and have sex with her

Facts and Circumstances

- She was known to use both stimulants and depressants in combination, in a vicious cycle
 - This time, the drugs were too much and she began to overdose



Southern Methodist University

Angelika Film Center & Café - Dallas

HobbyTown USA

Box School of Business

George W. Bush Presidential Center

Moody Coliseum

Westcott Field

Meadows Museum

Gerald J. Ford Stadium
Southern Methodist University sportsplex

SMU Tennis Complex

The Highland Dallas, Curio...

Jason's Deli

24 Hour Fitness

Walgreens

Mockingbird Elementary School

Glencoe Park

Gloria's Latin Cuisine

OT Tavern

Granada Theater

Google

Facts and Circumstances

- Toxicology results showed lethal levels of methamphetamine, cocaine and oxycodone.
- ??????
- 2 CNS stimulants and an opiate.
- Not your typical stimulants and depressants she was known to take.

Facts and Circumstances

- Who was the drug dealer?
 - Would hold poker parties at a location near SMU which attracted local bigwigs – athletes, sportscasters, and the like, all of whom fancied themselves good poker players.
 - He also encouraged SMU students to attend
 - “Real players” would avoid his parties because they knew the games were crooked.
 - On parole for the 1978 murder of a former Dallas police officer.

Facts and Circumstances

- Family, unable to get ahold of the victim, notified police and filed a missing person's report.
- Information was developed from an ex-boyfriend that the victim was in the company of her drug dealer.
 - She had sent a text that she was "with her drug dealer and he had guns."
 - Witnesses further described seeing the victim using cocaine and smoking meth on the bed of the drug dealer.

Facts and Circumstances

- The following day, Saturday, witnesses observed the victim lying on the drug dealers bathroom floor, unconscious with a “froth” coming from her nose and barely breathing.
- The witnesses tried to take the victim to the hospital, but the drug dealer prevented it.
 - Threatened them with a gun.

Facts and Circumstances

- Two simultaneous search warrants were served on his residences
 - Poker house located on Winton Street
 - His marital home located in Pleasant Grove.
 - Evidence recovered
 - Firearms
 - Clothing with blood
 - Animal fibers – two Pit Bulldogs at one of the residences

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 - Animal fibers – two Pit Bulldogs at one of the residences

Facts and Circumstances

- The victim had been found wrapped in a blanket.
 - The blanket had animal fibers located on it
- The animal fibers matched the animal fibers of the white pit bull
- A pair of shorts had a spot of blood on them – blood matched the victim.



Facts and Circumstances