

The Burning Question: *Is It Arson?*

Forensic Science
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Bell-Ringer

- Based on your knowledge and past experience if any, describe the following:
- 1st Degree Burns
- 2nd Degree Burns
- 3rd Degree Burns
- What is the number one cause of residential fires in the United States?

Objectives



- Understand the basics of fire
- Identify why arson happens
- Investigating the fire scene
- Using accelerants
- Wiring explosives

Introduction

- Fire is great for roasting marshmallows or cooking steak, but it wreaks havoc on evidence.
- Evaluating scenes where or explosions have occurred is difficult, at best.
- The scene of the crime and the evidence are severely damaged, if not it is completely destroyed by the fire.
- In addition, the efforts of the firefighter themselves may destroy evidence.



Introduction Continued

- A successful arson investigation overcomes these obstacles to answer two basic questions:
- Where was the fire's point of origin, and what was the cause of the fire?
- The investigator uses physical and chemical evidence to uncover the answers.
- Based on those findings, the investigator may determine, in general, whether the fire was accidental or incendiary (intentionally set).





Therefore....

- Simply bringing oxygen and a potentially flammable fuel source, such as paper or gasoline, together does not produce fire. You need something else – HEAT.
- Remove any of these components – fuel, oxygen or heat – and no fire occurs.

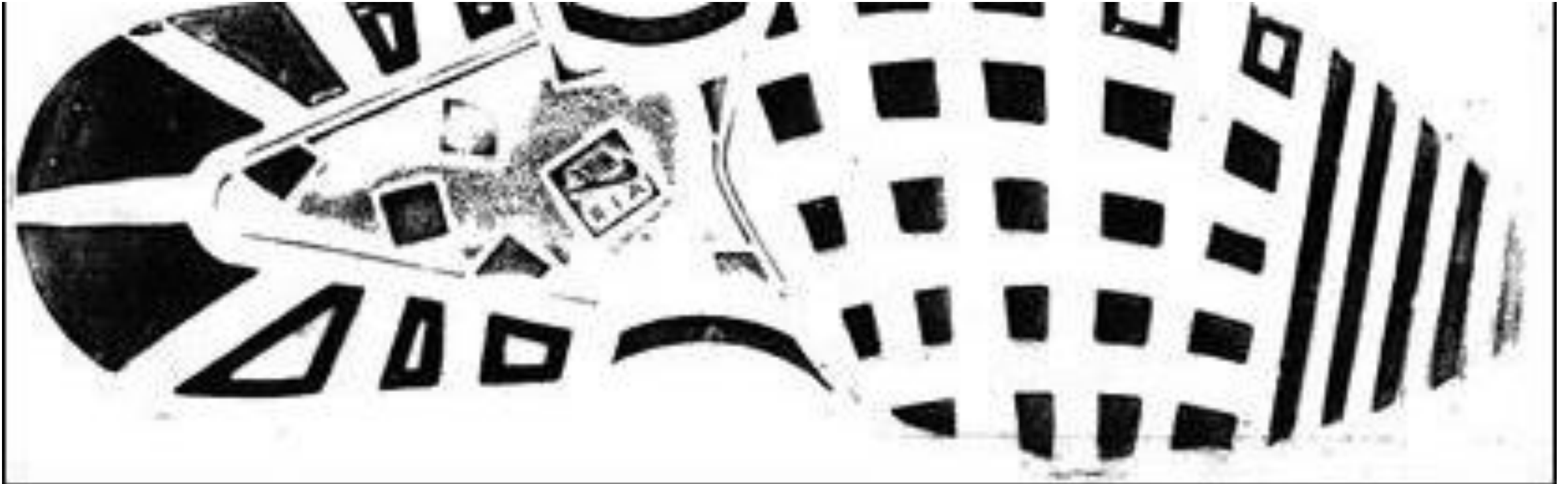
Understanding Fire Starters



- Fire is just plain fascinating, and humans have a nearly universal attraction to it.
- Whether its admiration for the beauty of a fireplace or for the practicality and tastiness of food grilled over an open flame, most of us find fire captivating.
- Maybe it derives from our ancestors' close relationship with fire, which served as their only source of heat and light.
- Maybe it's fire's ethereal nature that draws us to it.
- In the case of arson, it may simply be fire's raw destructive power that fuels the attraction.
- The reason people instinctually set fires are many and varied, but arson invariably has a payoff.
- ***The most common reasons criminals set fires include the following:***

Covering Their Tracks

- Arsonists often use fire to cover another crime, such as theft or even murder.
- An embezzler may use fire to destroy financial records; an employee who stole goods from a company warehouse may hope that the fire will hide the indiscretion.
- After all, if you destroy the records or the inventory, how can anyone determine whether anything is missing?
- Because of this possible motive, arson investigators always search a fire scene for signs of break-in and theft.



Insurance Fraud

- Maybe the arsonist needs quick money, or perhaps the insurance on the home or warehouse is greater than the property's market value.
- Arsonist sometimes try to claim insurance on valuables they actually removed from the building before setting the fire, hoping to get an insurance settlement for the valuables without actually having to lose them.
- Greed is a great motivator.



Psychological Reasons

- An individual who has a pathological love of fire may start a forest or structure fire simply because he finds it exciting.
- The resulting destruction and the beauty and power of the fire itself feed some deep-seated psychological need.
- This kind of fire-starting often becomes a serial offense.





Revenge

- A grudge of deep seated hatred for another person may be enough to drive a hot-headed arsonist to torch that person's house or business.

Suicide or Murder

- Fire rarely is used as a means of committing suicide or murder, because it simply is too painful for suicide and too unpredictable for murder.
- Bodies found in fires usually were killed before the fire was started.
- Terrorism: Someone, or some group, may burn structures to create fear or make a political statement.





Sweeping the Ashes Under the Rug

- A murder who sets a fire in an attempt to disguise or cover up a murder doesn't know his chemistry,
- Structure fires do not burn hot enough or long enough to completely destroy the body. When cremated the body is exposed to temperatures of 1,500 degrees for two hours or more.
- These temperatures reduce the body to ashes and bone fragments.



Structure Fires

- A structure fire may reach temperatures of 500 to 2,000 degrees, but because fire rapidly consumes its fuel (structure), the high temperatures don't last long.
- Therefore, a structure fire is unlikely to completely destroy a human body.
- In fact, bodies that are significantly charred in a fire often remain remarkably well preserved internally. The medical examiner can still search for trauma and poisons.

Thank You!

Comments and Questions

