Explosive Devices

Forensic Science
Part 4
Bell-Ringer

- Forensic Science
- What is the difference between high and low explosives?
- In two words, what is the difference between a fire (arson) and an explosion?
Introduction

- The use of explosive devices is on the rise in our country.
- The World Trade Center bombing in New York City, the federal court house bombing in Oklahoma City, the Olympic Bombings in Atlanta, and the Unabomber are all current examples of the terrorist criminals using “Pay Back” for individuals and society in general.
The criminal who would use and explosive devices is a coward who resorts to absentee and random murder.

Explosives devices are not just limited to terrorists.

Burglars and extortionists frequently rely on this method of destruction.
Explosive Devices

- There seems to be good and bad side with every discovery and invention.
- Man, in his search to solve everyday problems, discovers and invents amazing and powerful tools.
- Many times the discovery of tools that were meant to benefit mankind and society are turned into destructive and dangerous weapons.
Explosives Devices Continued

- One such invention is the explosive amount of gas, heat, and the consequent production of sudden pressure effects.
- Mostly used for blasting and quarrying, explosives are used in a variety of commercial applications.
- They are also used as propellants for projectiles (such as bullets), rockets, bombs and mines.
A Little History

- Gunpowder (also known as black powder) was invented by the Chinese in the 9th or 10th century and used in firecrackers.

- By the 13th Century, the formula for making gunpowder had reached England. It was the only explosive known for 500 years.

- A use was quickly found for gunpowder: Projecting Projectiles.

- Powder manufacturing plants were built in England and Germany during the 14th century.
A Little More History

- Regulations regarding the manufacture and use of gunpowder were placed into effect by the government in England in the early 1600’s.
- Nitrocellulose and Nitroglycerin were both discovered in 1847 and were the first modern explosives.
- Explosive are grouped into two main classes: Low and High Explosives.
Explosives

- When an explosive device has been detonated, there are a number of factors added to the normal crime scene search.
- The investigator will need to determine if the structure is safe to inhabit after the impact of explosives by consulting with local building inspectors.
- A search will have to be conducted to determine if there are other explosive devices in the area.
Forensic Science
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- Black-Powder was invented, where? Why?
- Gun Powder was invented where?
- Who invented TNT? (Trinitrotoulene)
Therefore

- There are usually a large number of individuals who arrive at a bomb scene.
- Fire Department, rescue workers, utility company workers, on-lookers, and newspaper people all add to the confusion of an already chaotic situation.
And…

- After the injured people have been attended to, the scene will have to be secured and all unofficial individuals asked to leave.
- Witnesses and victims should be interviewed as soon as possible.
- The investigator will need large variety of tools to sift through the debris in search of evidence.
Protective eye goggles, gloves hard hats, coveralls and heavy boots are required to protect the Forensic Science Workers.

If other agencies are involved, there should be a command center to gather and process evidence gathered.

The bomb scene damage should be assessed establishing a focal point where the bomb was detonated and the perimeter of the blast.
A buffer area should be added to the perimeter and included into the search.

The search for evidence should include items which would lead to the identity of the bomber.

Of prime importance a piece of the bomb, a timer (if used), wire, fuses, blasting caps, batteries, or any other item which might provide useful information.
Trace

- Trace materials should be gathered which would provide information as to the type of explosives used.
- If a suspect has been found, a full search of his skin and clothing for explosive residue should be conducted.
- The search should include the suspect’s vehicle, residence and place of business. An evidence log needs to be kept in detail recording location of all collected evidence.
Thanks….

- Before your leave:
  - A) Lab Quiz
  - B) Bell-Ringer
  - C) Journal
  - D) Pre-Lab. Exp #38.