Corroded Firearms: The Non-Destructive Approach

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CREATE THE DIFFERENCE
The problem

• Nottinghamshire Police (March 2011)
• Battlefield weapons (May 2014)
• Highly corroded firearms recovered
• Completely seized

• Are they safe? Any evidentiary value?
X-ray analysis: A potential solution?
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- Non-destructive
- Good imaging resolution (<1 mm)
- Rapid (<2 min)
- In-situ threat detection

- Examination of suspect objects
  - concealed weapons
  - homemade weapons
  - corroded weapons
Equipment

• Static x-ray scanners
  ➢ X-Tek VTX (160 kV)
  ➢ 3DX-Ray SRI 250 (250 kV)

• Portable x-ray scanner
  ➢ 3DX-Ray FlatScan-TPXi (120 kV)
  ➢ 3DX-Ray FlatScan-TPXi (160 kV)
What can x-ray reveal?:
Is it ‘safe’?
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Is it ‘safe’?

Empty magazine

Clear, hollow barrel
What can x-ray reveal?:
Fired or unfired ammunition?
Corroded firearms: Exhibit 1

- Complex firing
- Dense material
- Empty magazine
- Empty chamber
- Empty barrel
- Safe S5 firearm
Corroded firearms: Exhibit 2

- Case in chamber
- Safe or unsafe?
- Projectile?
Conclusions

- Examinations:
  - Live or deactivated
  - Loaded or unloaded
  - Evidentiary value
  - Historic preservation

- In-situ (if required)

- Higher energy sources may be required
Future for x-ray analysis ...

Firearm components?
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