



# *Solving Crime with Forensic Science*

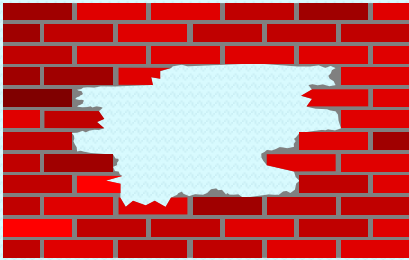
Michelle Breathnach

*‘Every contact leaves a trace’*

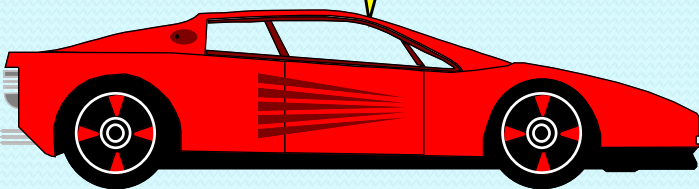
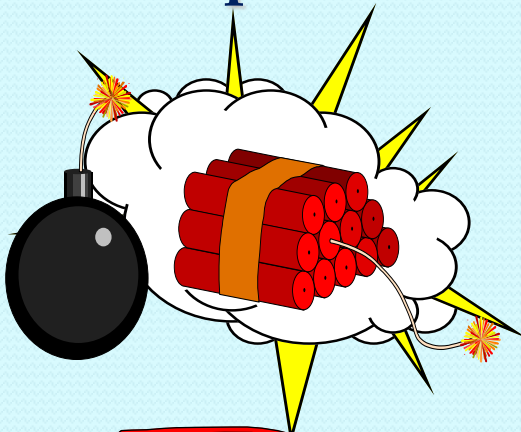
Edmond Locard



**Burglaries**

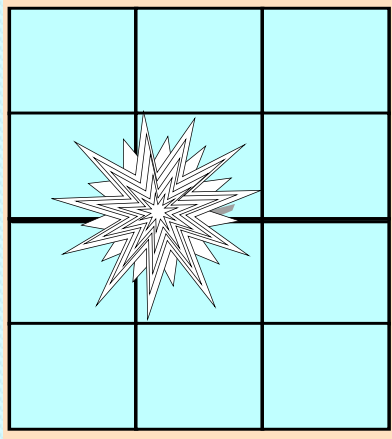


**Explosives**



**Hit and Run Traffic  
Accidents**

**Chemistry:**



**Criminal Damage**



**Fires**

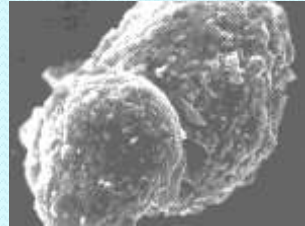
**Armed robberies**



**Firearms**

# Trace Evidence:

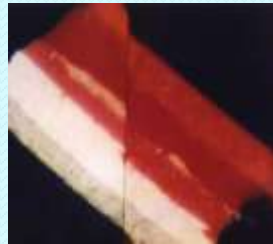
Firearm  
Residue



Hairs



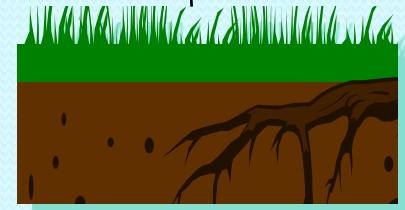
Paint



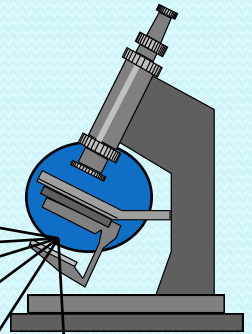
Fibres



Glass

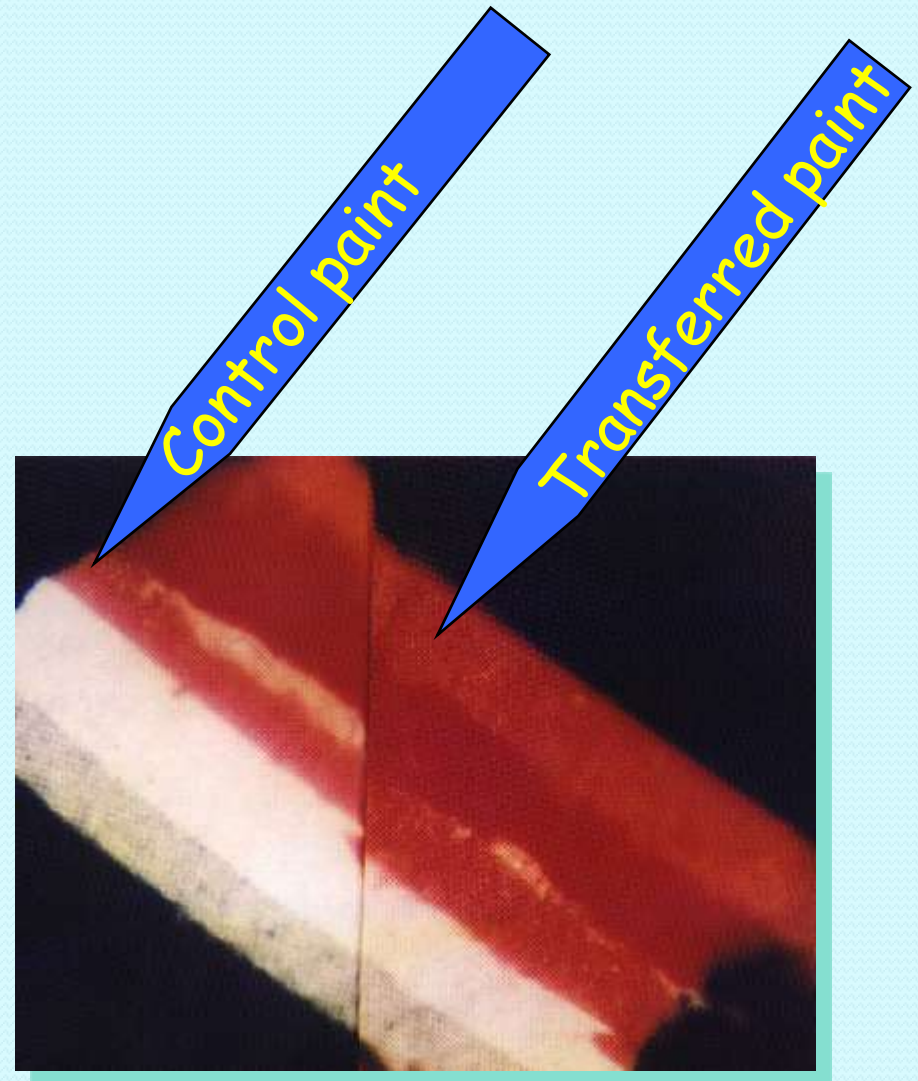


Soil



# Microscopic Examination of Paint:

- from damaged doors, window frames
- between motor vehicles, from vehicle to person
- Colour  
Make & model of vehicle



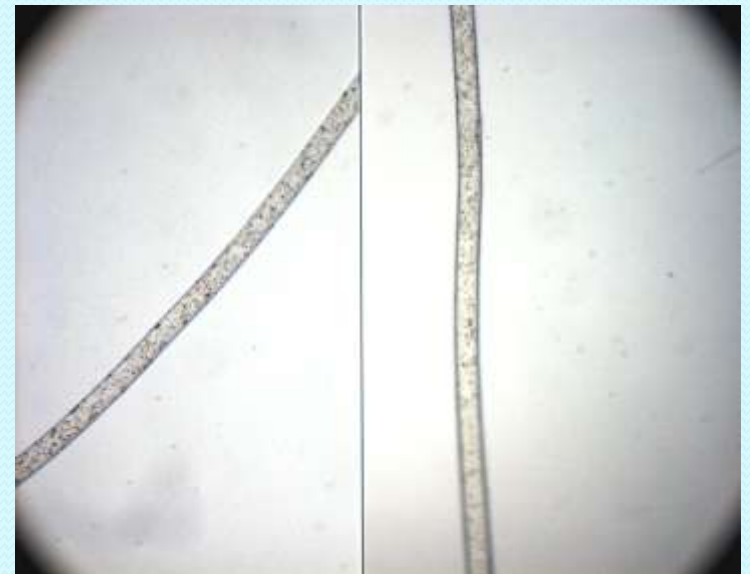
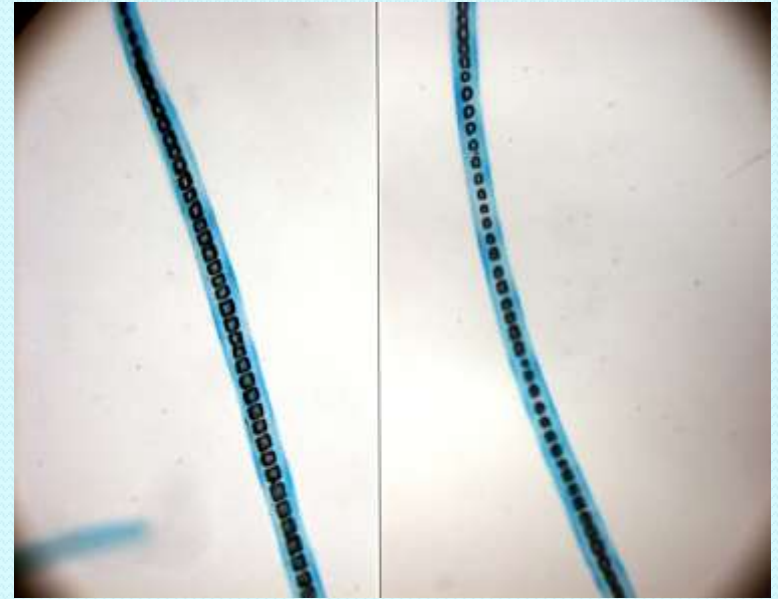
# Footwear Mark Evidence:

- Most surfaces
- Visible/invisible
- Enhancement-powder/light/casting



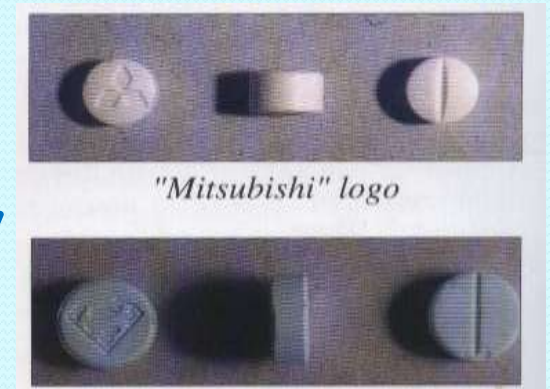
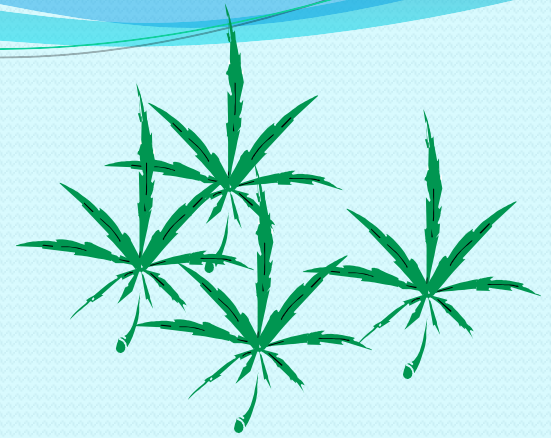


# Fibre Evidence:



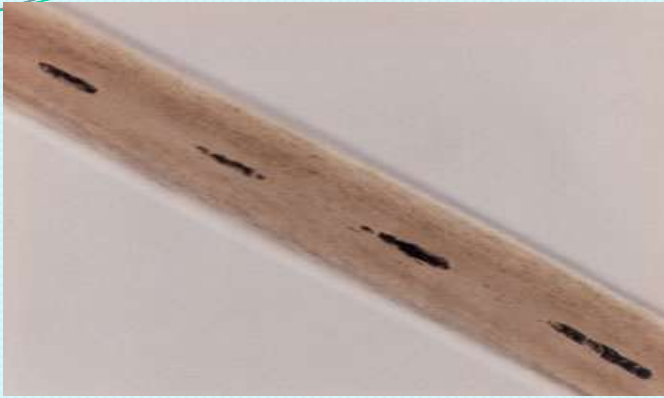
# Drugs Evidence:

- Analysis and identification
- Estimation of yield
- Analysis of wraps - polybags, cling-film





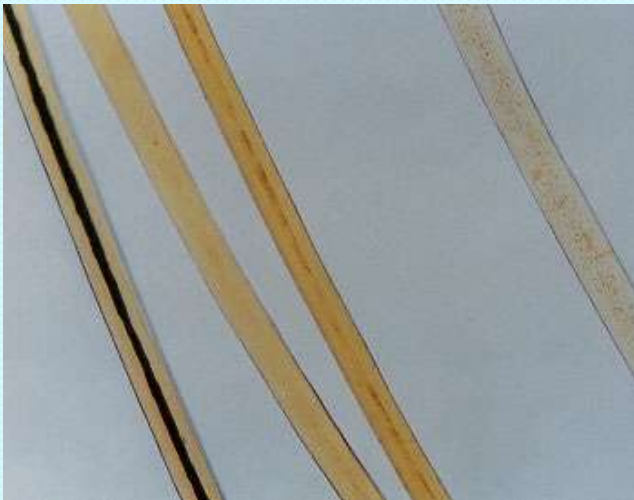
# Hair evidence:



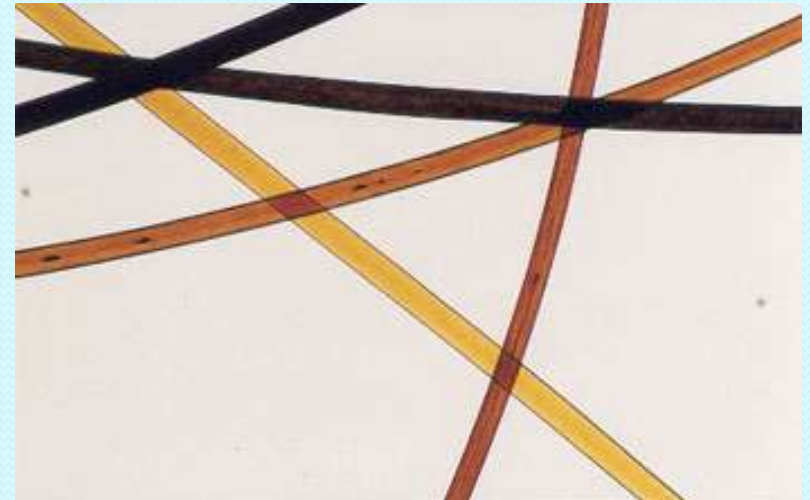
Human hair



Animal hair



Human Hairs



Dyed hair

# DNA:

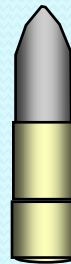
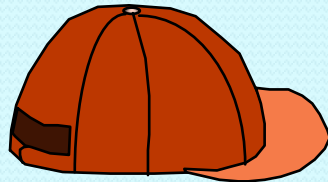
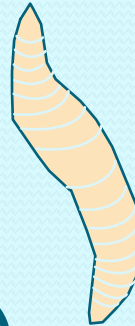
## Sources:

- Blood and blood stains
- Saliva - cigarette butts, chewing gum, drinking straws, balaclavas, stamps
- Skin cells - fingernail scrapings
- Clothing
- Bones, Teeth



# Types of sample to consider

- Watch
- Maggot (Fly larvae)
- Sweat
- Bullets
- Jewellery



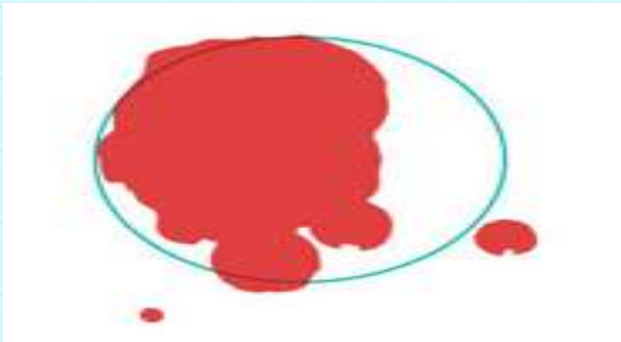
# Blood and Blood Pattern Analysis:

- Physical evidence at the scene
  - location of attack
  - method of assault
  - sequence of events
- On exhibits
  - how it could have arisen

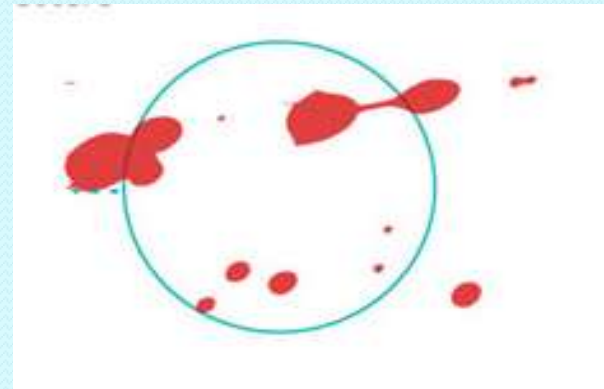


# Blood and Blood Pattern Analysis:

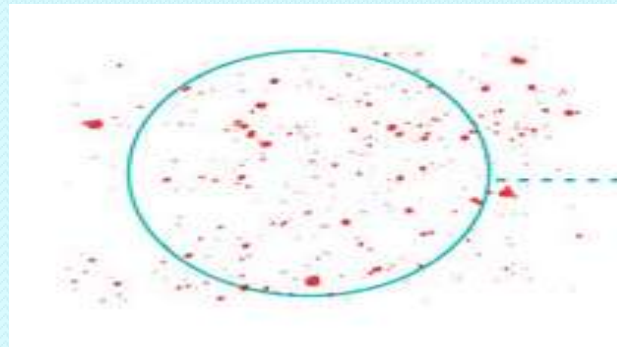
**Low velocity spatter** - results from low impact blows



**Medium-velocity spatter** - results from attacks with a blunt object



**High-velocity spatter** - occurs with gunshot wounds





# Blood Stain Patterns



Blood Drip



Directional Spatter



