

Evaluation of ALS Camera Systems in documentation of Fingerprint Evidence

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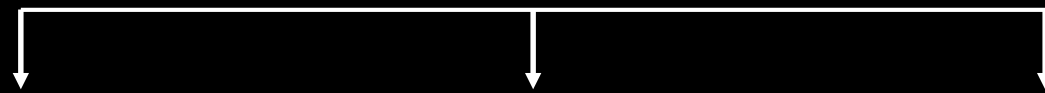
Visual Examination



Photography



Enhancement Methods



Physical
Methods

Chemical
Methods

Luminescence
Methods



Photography



ALS attachable DSLR system



Current hand held ALS device with DSLR

Equipment type Light source	ALS attachable DSLR system		Current hand held ALS device with DSLR	
	Dominant Output(nm)	Maximum Light Intensity(mW)	Dominant Output(nm)	Maximum Light Intensity(mW)
Ultra Violet	365	700-1200	400	650
Purple	415		N/A	N/A
Blue	470		450	2000
Green	525		525	730

Enhancement Methods

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graph TD; A[Enhancement Methods] --> B[Powder]; A --> C[Amino Acid]; A --> D[Cyanoacrylate Fuming]; A --> E[Blood Reagent];
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Powder

Amino Acid

Cyanoacrylate
Fuming

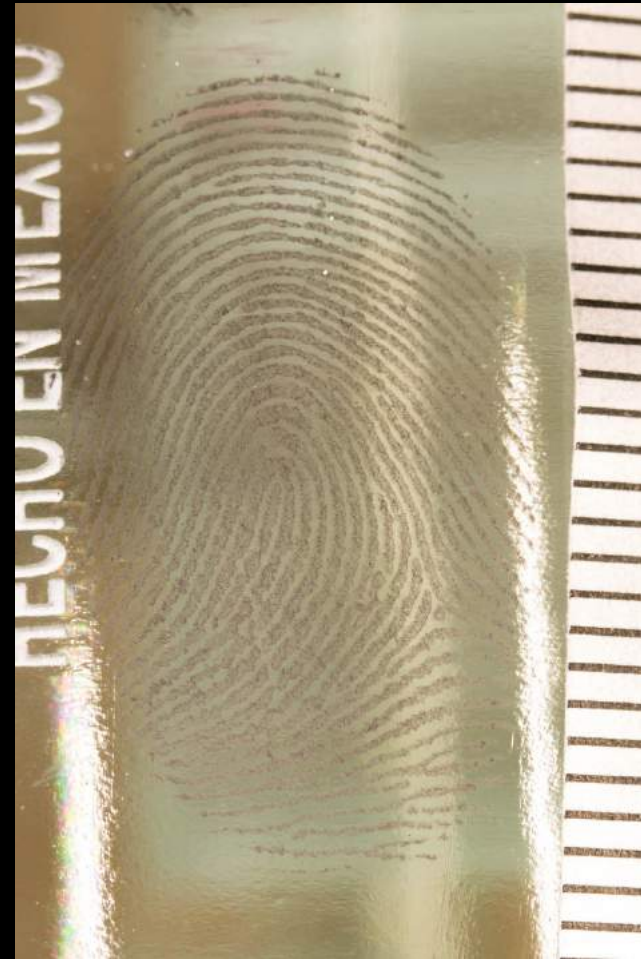
Blood Reagent

Latent Prints Process with Powder Method

Powder



A. New System



B. Traditional System

Powder Silk Black/Clear Glass Bottle



Powder



A. New System



B. Traditional System

Powder Coin Box Galvanic/Colored Glass Bottle



Powder



A. New System



B. Traditional System

Magnetic Powder White/Dark Glass Bottle



Powder



A. New System



B. Traditional System

Powder White/Multi-color Painted Can



Powder



A. New System



B. Traditional System

Powder Silver Red/Metal Pot Lid



Powder



A. New System



B. Traditional System

Magnetic Powder Regular Black/Clear Plastic Bottle



Powder



A. New System

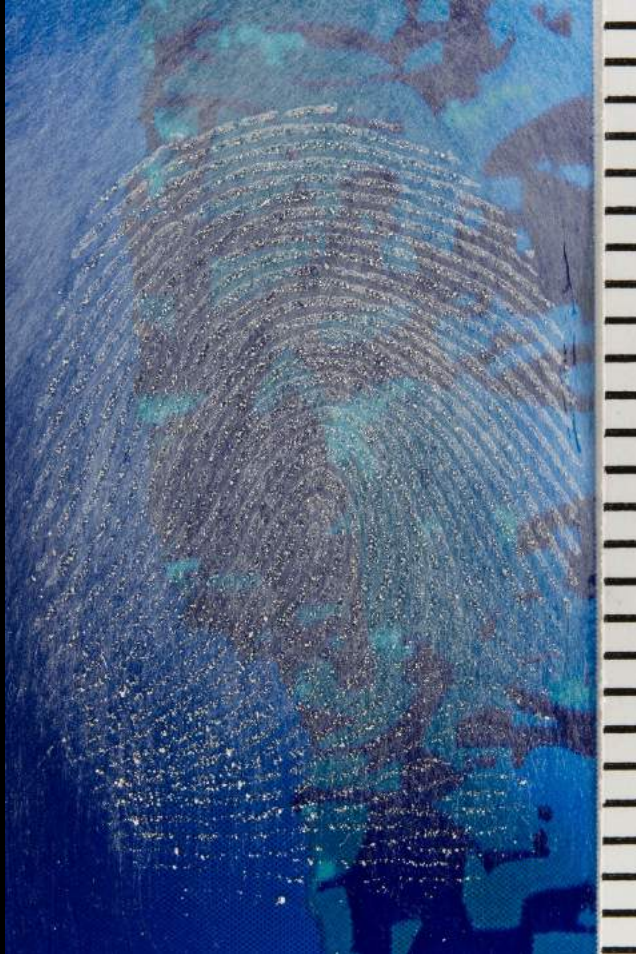


B. Traditional System

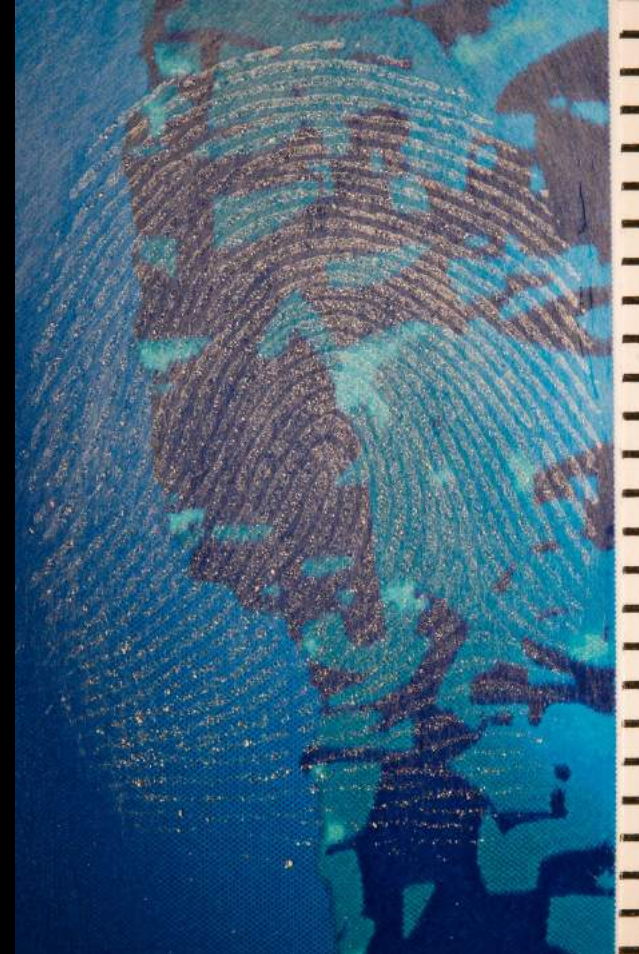
Magnetic Powder Regular Black/Golf Ball



Powder



A. New System



B. Traditional System

Magnetic Powder White/Multi-color Plastic Label



Powder



A. New System



B. Traditional System

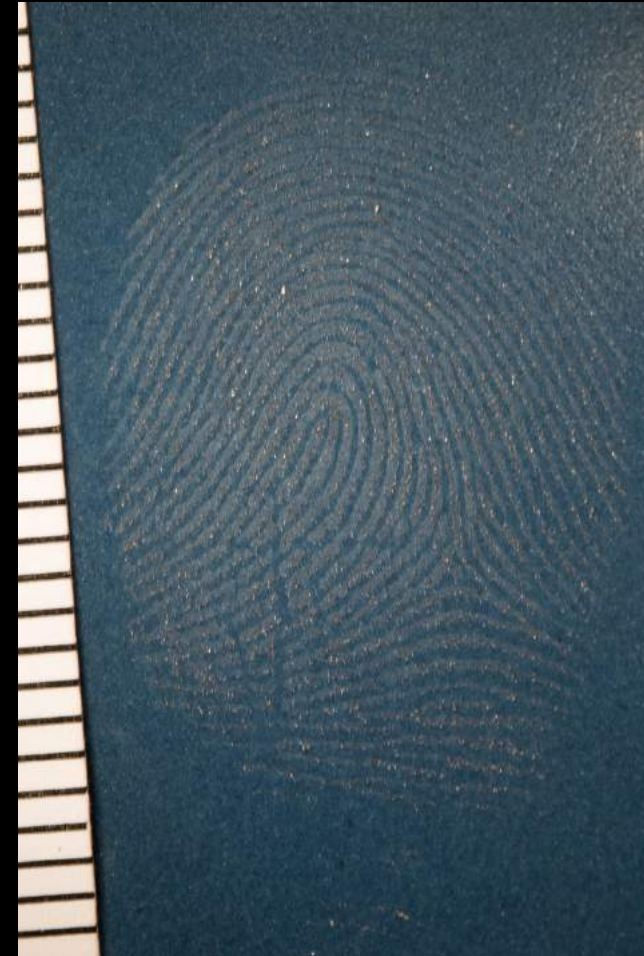
Magnetic Powder Silver Black/White Plastic Bottle



Powder



A. New System

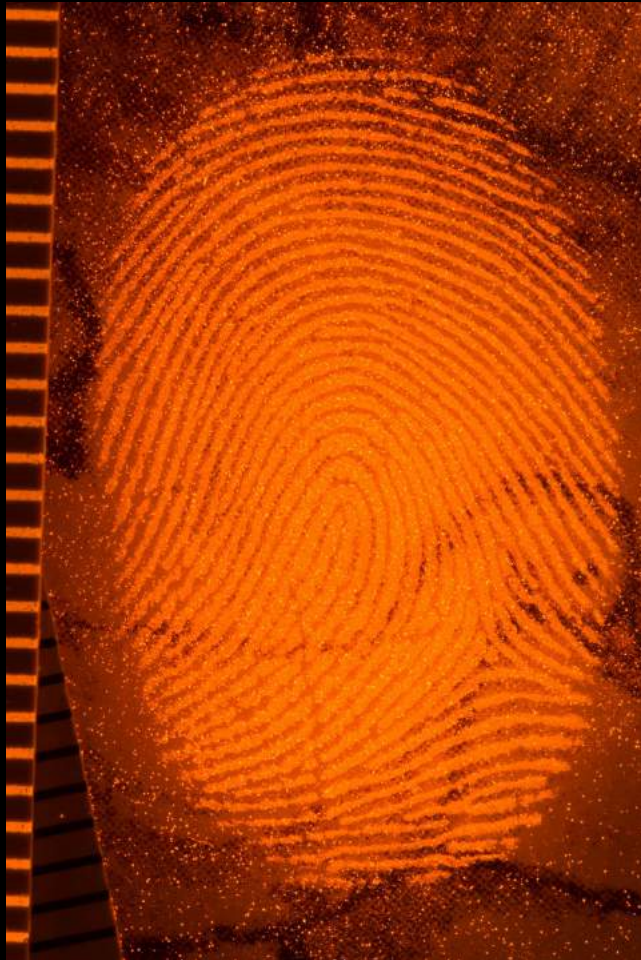


B. Traditional System

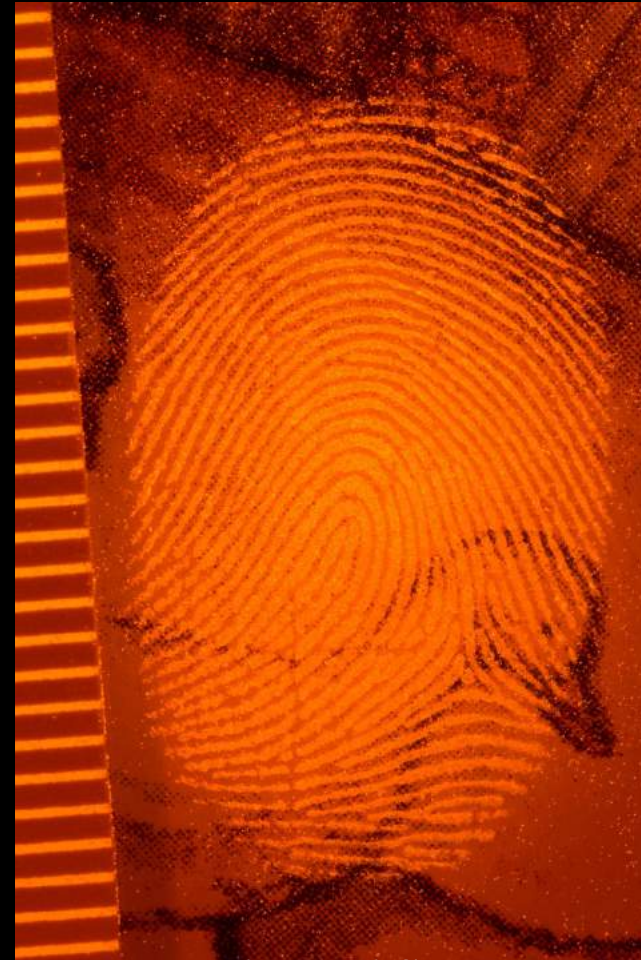
Magnetic Powder Gray/Dark Ceramic Bowl



Powder



A. New System

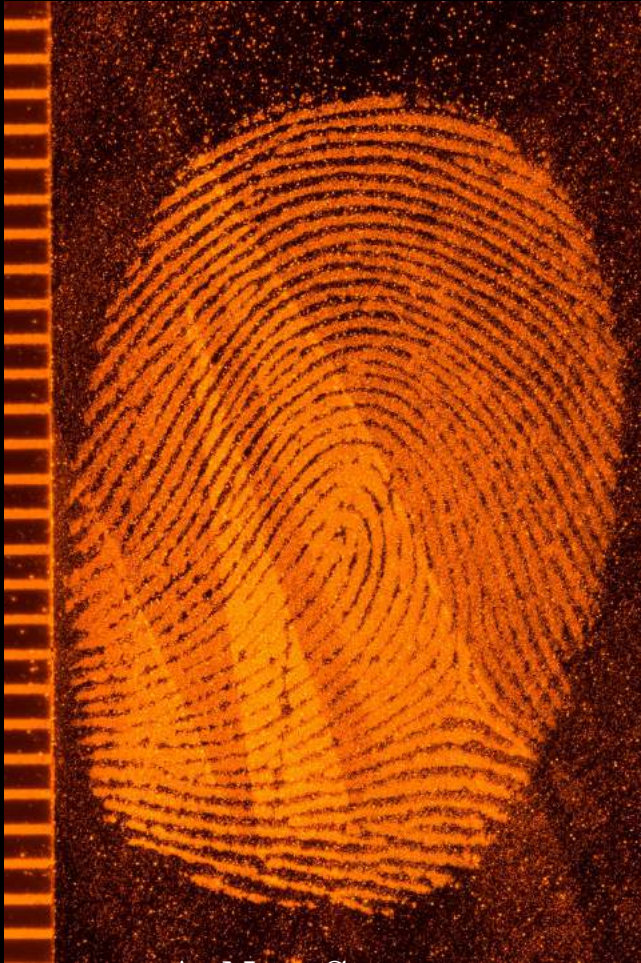


B. Traditional System

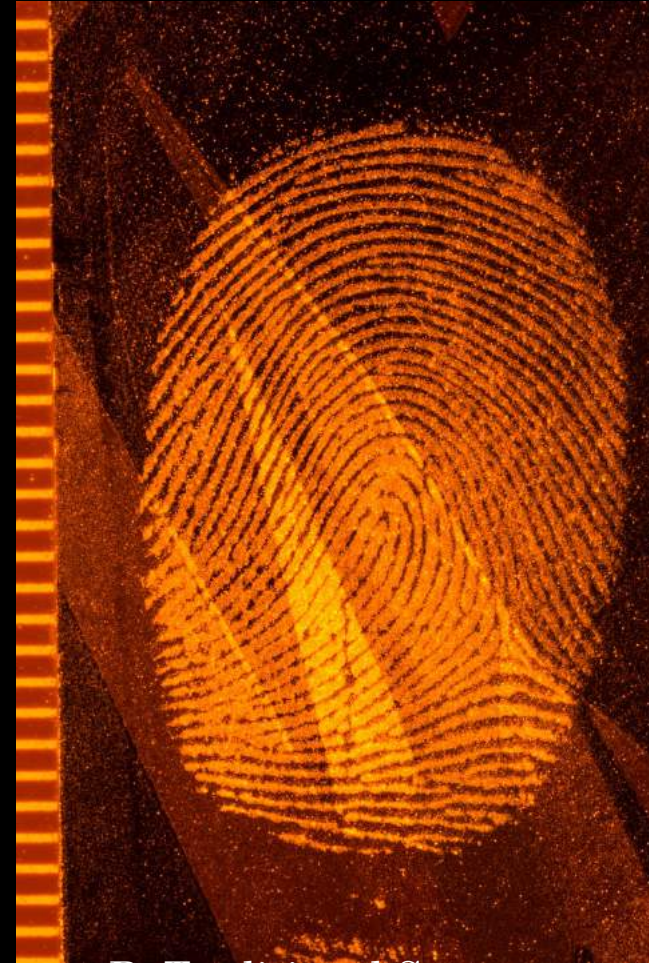
Fluorescent Powder/Glass frame



Powder



A. New System



B. Traditional System

Fluorescent Powder/Multi-color Metal Soda Can



Powder



A. New System

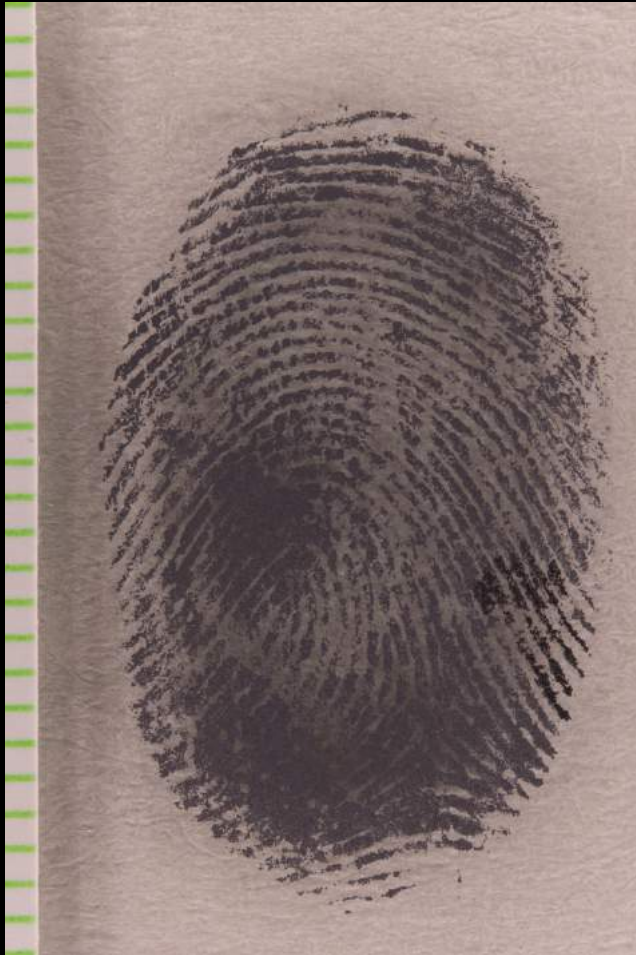


B. Traditional System

Sticky Side Wetwop/Tape Sticky Side



Powder



A. New System



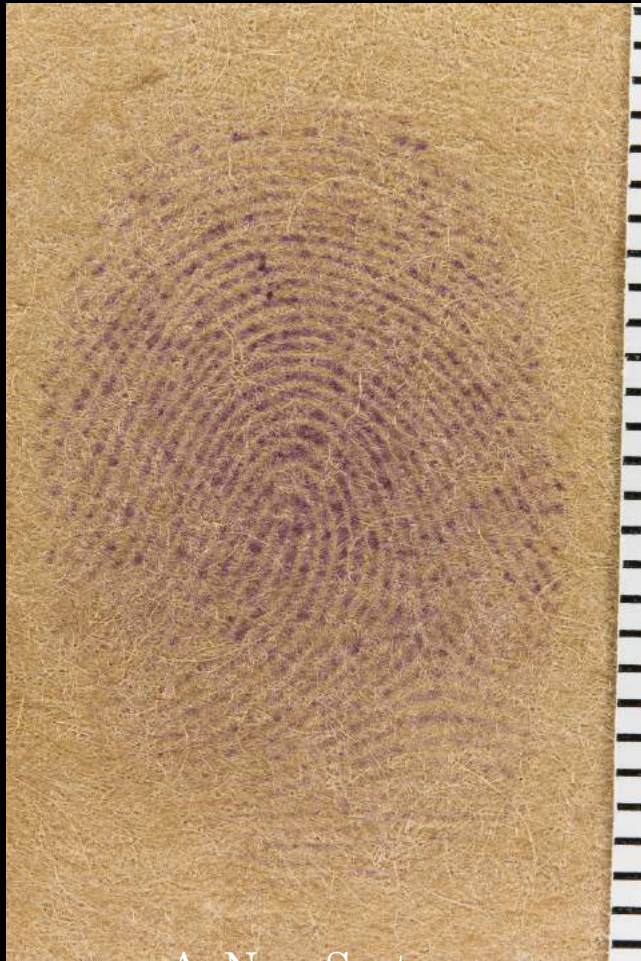
B. Traditional System

Small Particle Reagent Black/Wet Glass



Latent Prints Process with Amino Acid Method

Amino Acid



A. New System



B. Traditional System

Ninhydrin/Brown Paper



Amino Acid



A. New System

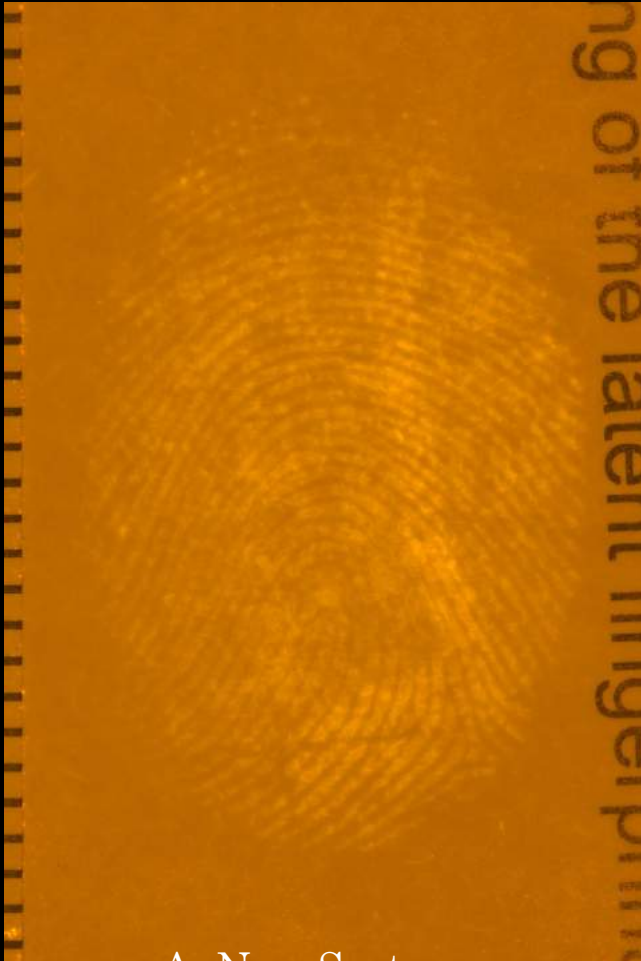


B. Traditional System

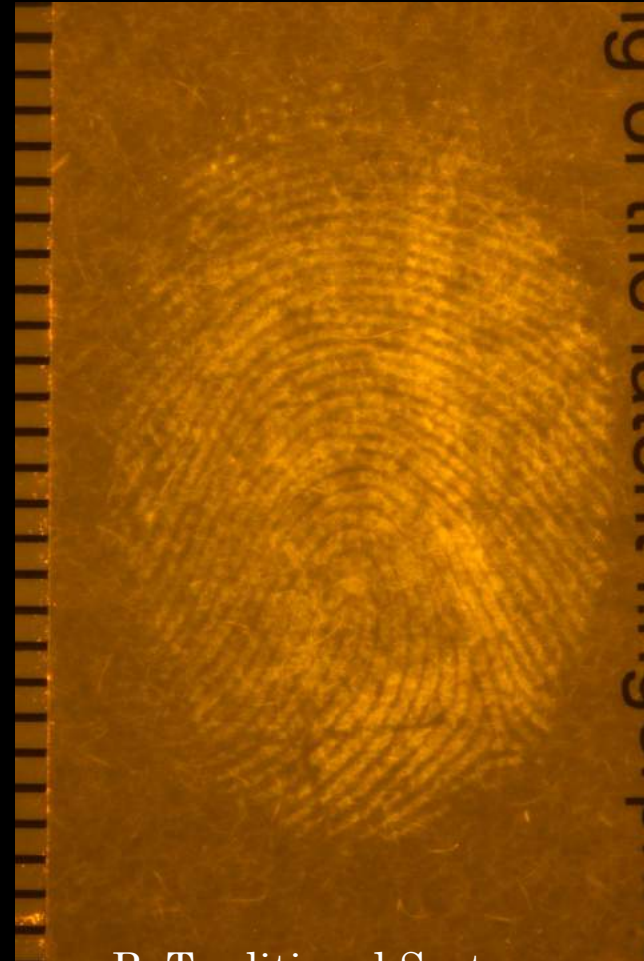
1,2 Idanedione/Thermal Paper



Amino Acid

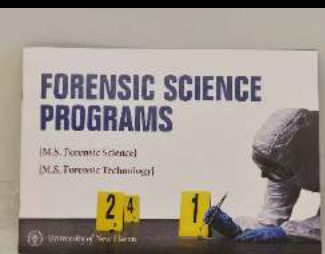


A. New System



B. Traditional System

D.F.O/Coated Paper



Latent Prints Process with Fuming Method

Fuming



A. New System



B. Traditional System

Basic Red 28/Plastic Bag



Fuming



A. New System



B. Traditional System

MBD/Glass Bottle



Fuming



A. New System



B. Traditional System

Rhodamine 6G/Plastic Card



Fuming



A. New System

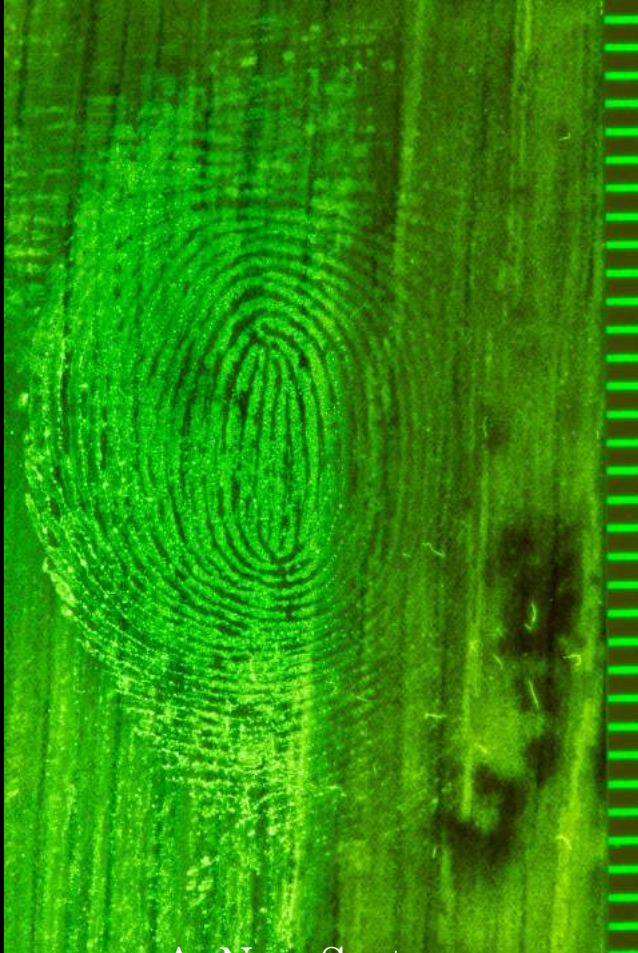


B. Traditional System

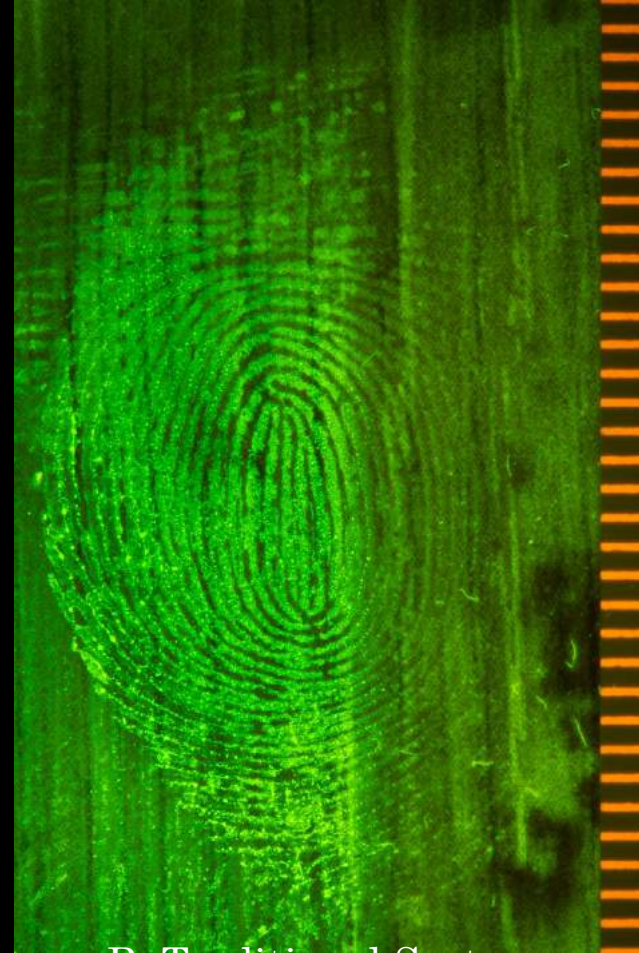
RAM/Plastic Shotgun Shell



Fuming



A. New System

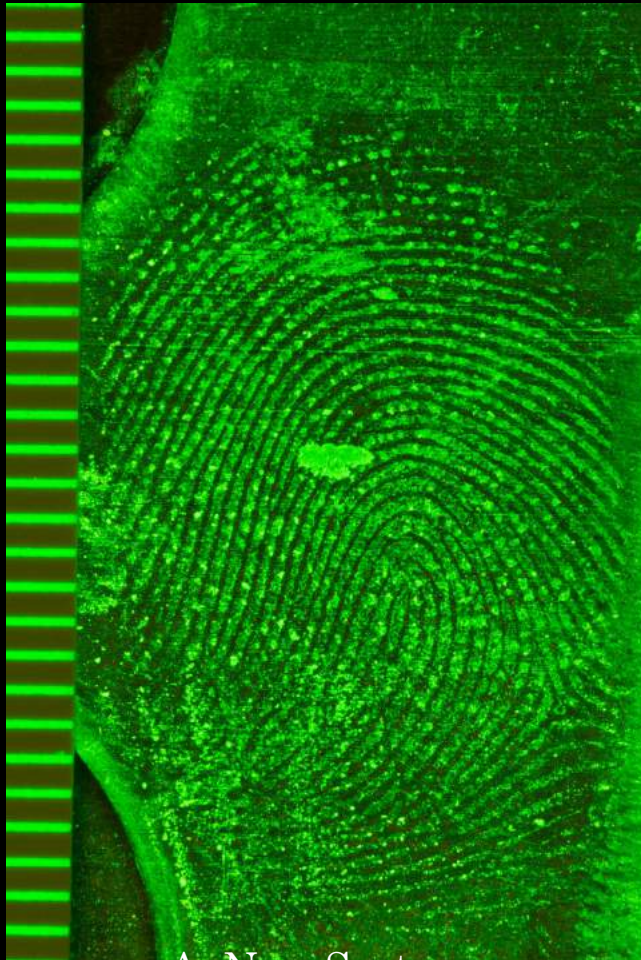


B. Traditional System

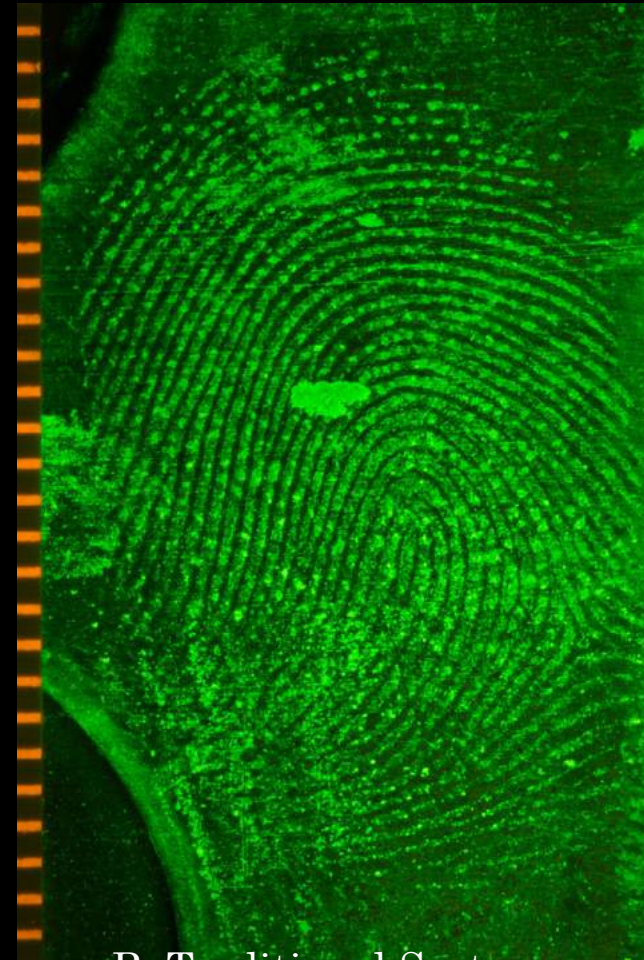
Ardrox/Wooden Floor



Fuming



A. New System

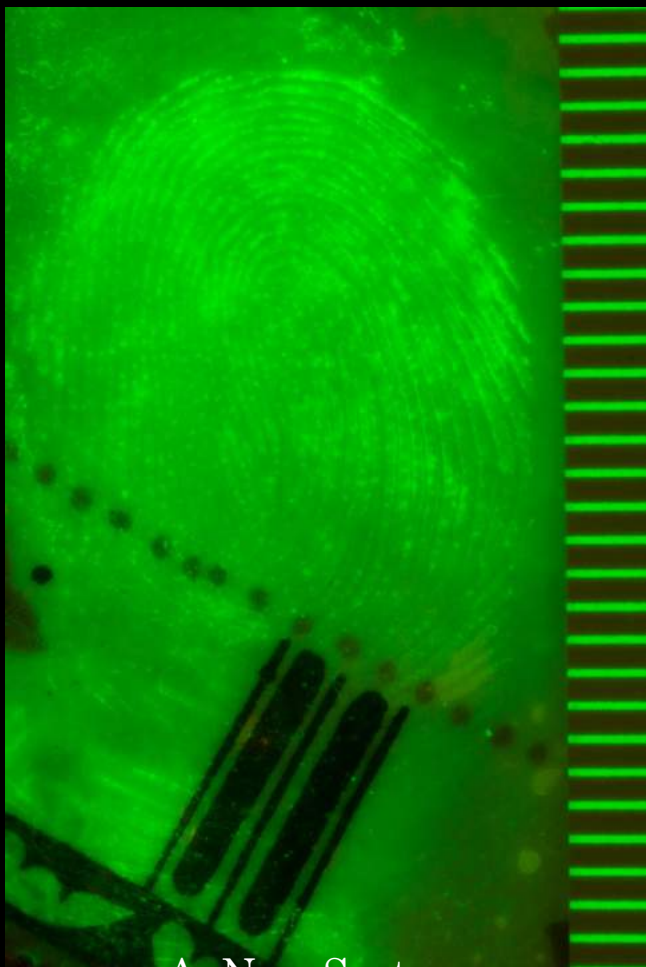


B. Traditional System

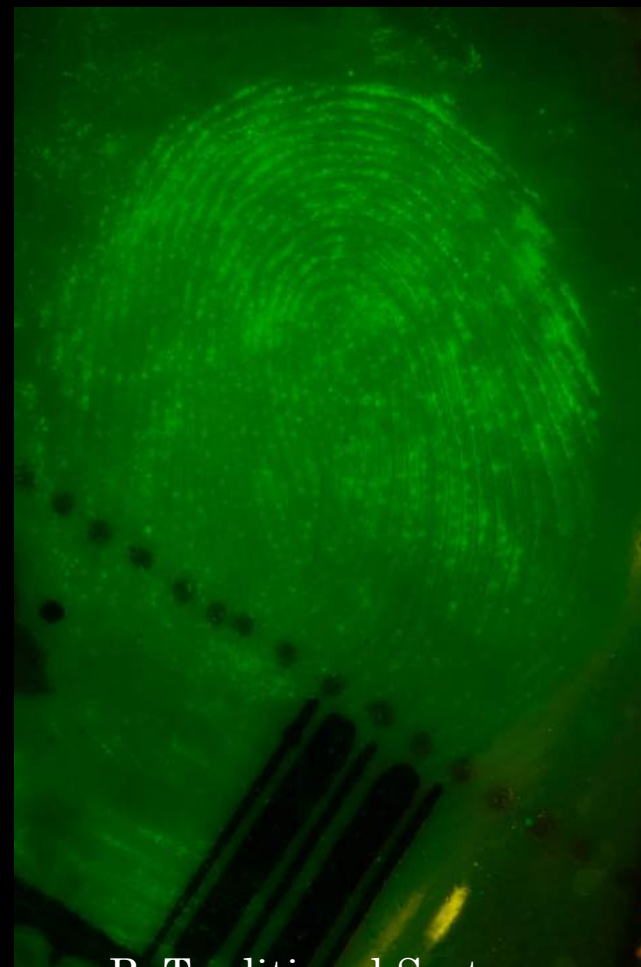
Ardrox/Metal Box



Fuming



A. New System



B. Traditional System

Basic Yellow 40/Ceramic Cup



Latent Prints Process with Blood Reagent Method

Blood Reagent



A. New System



B. Traditional System

Leuco Crystal Violet/Tile



Blood Reagent



A. New System

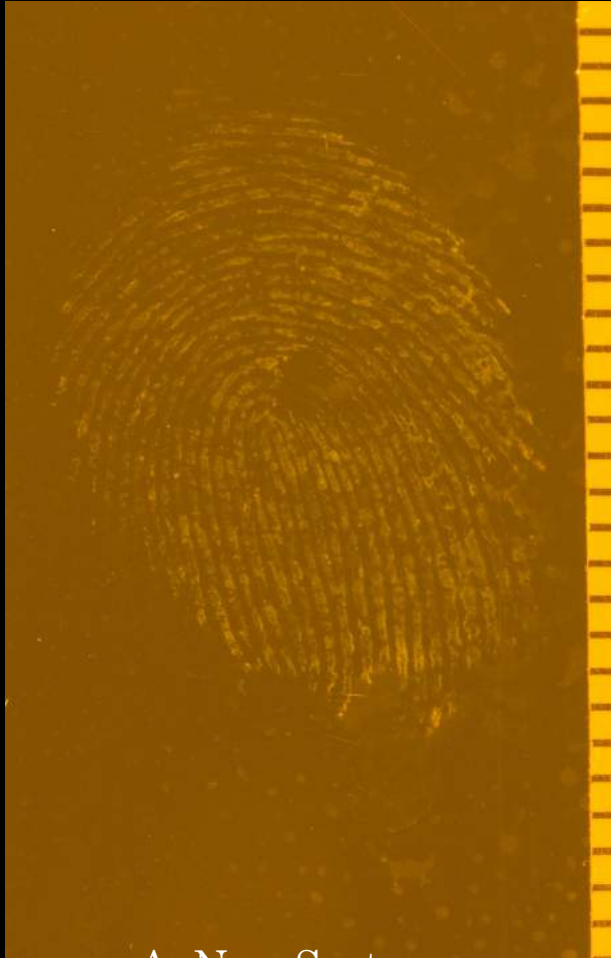


B. Traditional System

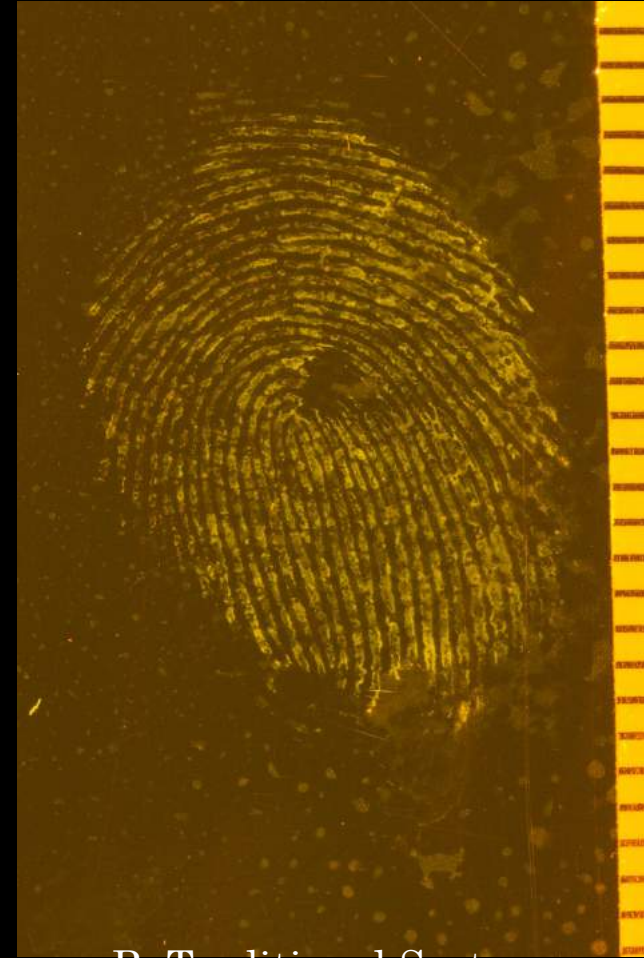
Hungarian Red/Wooden Floor



Blood Reagent



A. New System



B. Traditional System

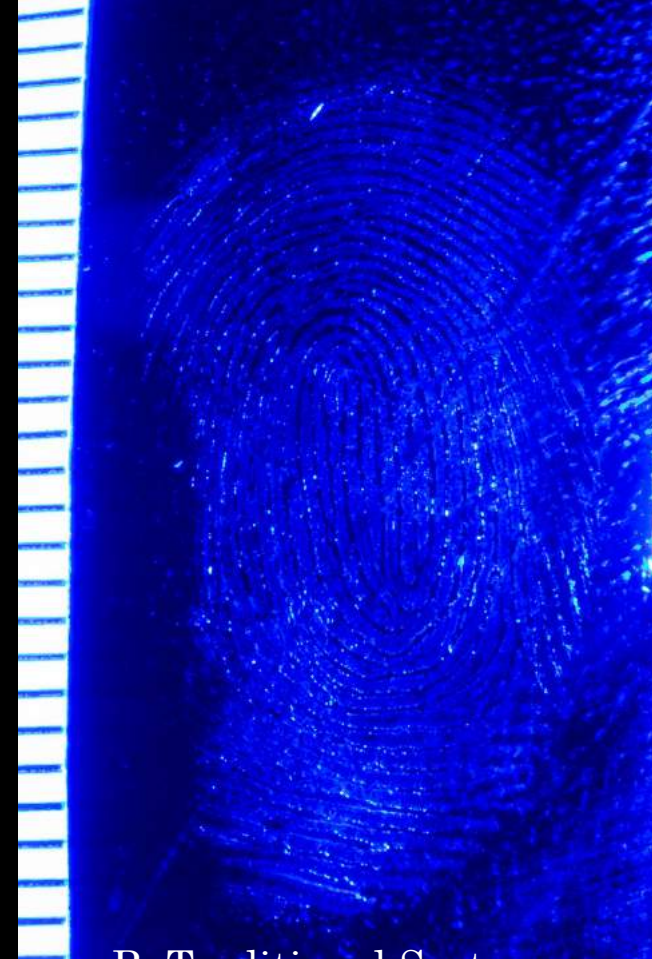
Merbromin/Metal Soda Can



Blood



A. New System

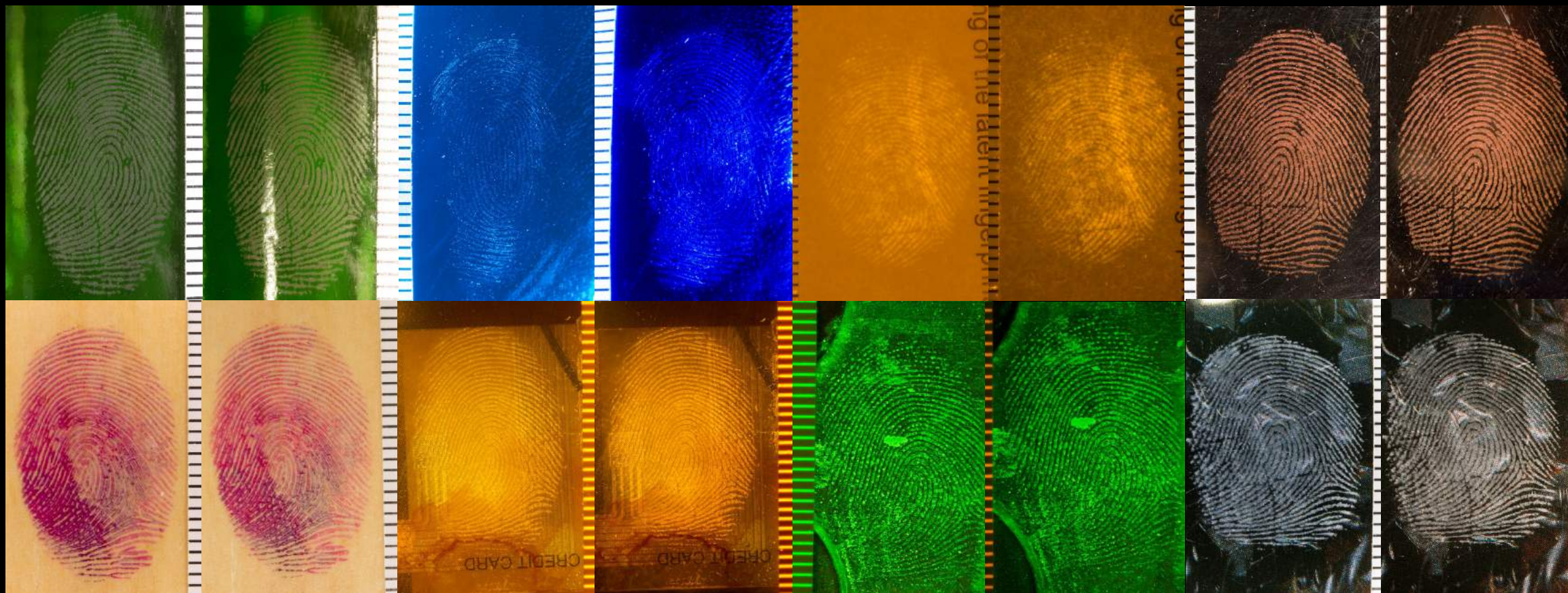


B. Traditional System

Blood/Dark Glass Bottle



Results



Quality of captured image of evidence

Results



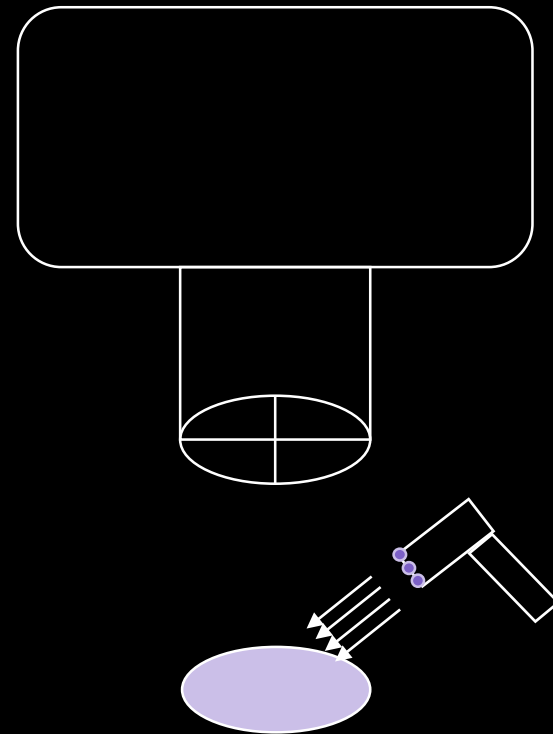
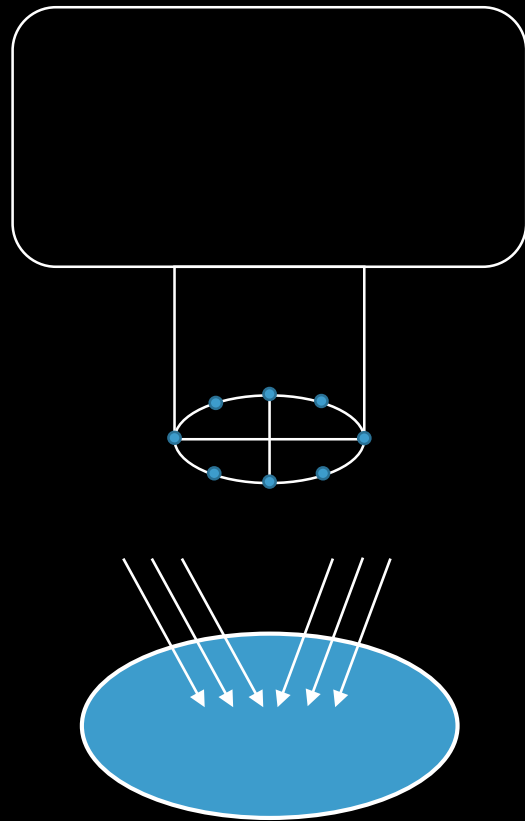
Ease of equipment operation

Results



Manpower requirement for crime scene documentation

Results

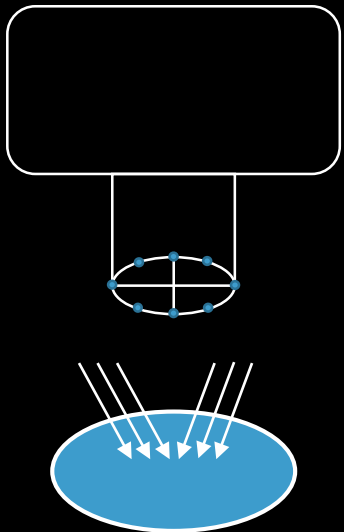


Light source illuminating capability



Conclusion

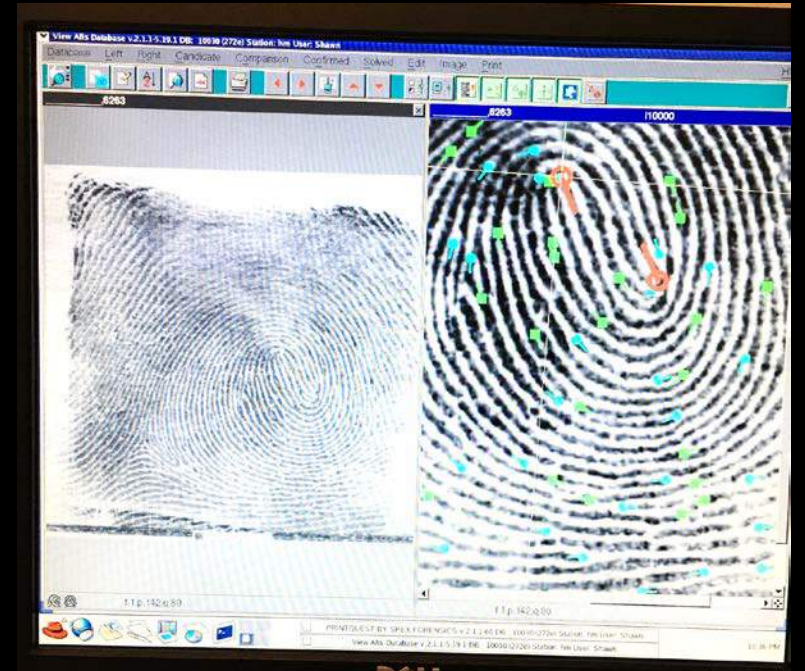
Our results indicate both systems will assist in the recognition and documentation of evidence. For the crime scene search, the external ALS device is more practical, while for documentation, the ALS attached DSLR system has its advantages.



Design for Next Generation



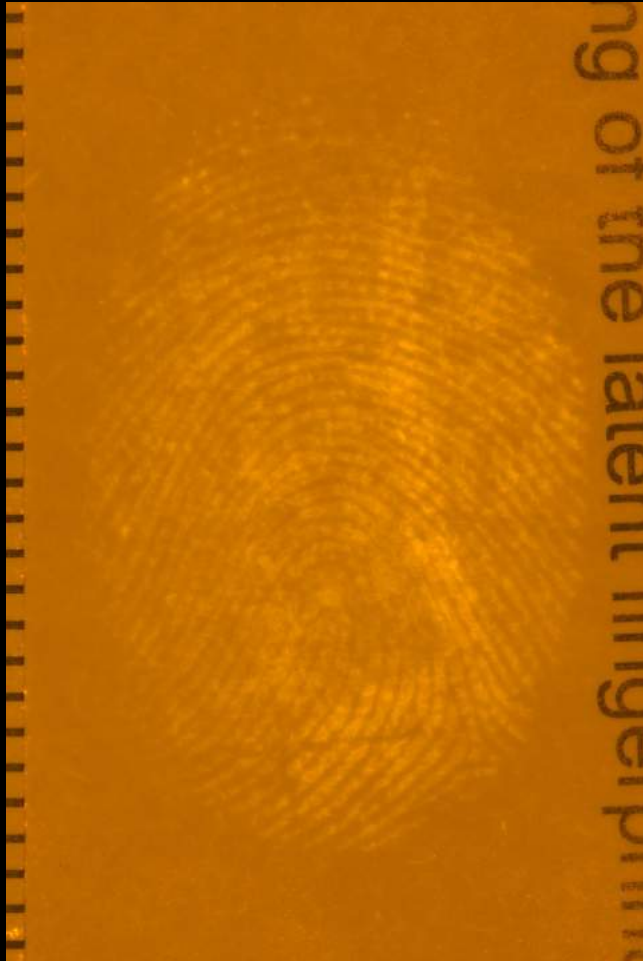
Crime Scene



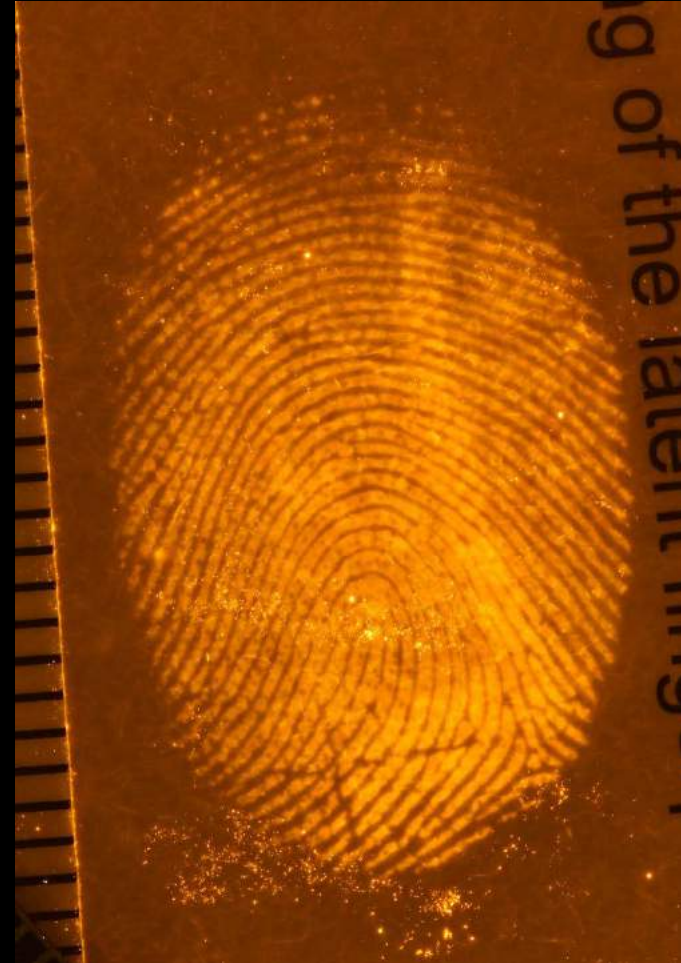
AFIS

Evidence quality photos direct entry at crime scene

New Solution for Energy Issue



1st generation



2nd generation

D.F.O/Coated Paper

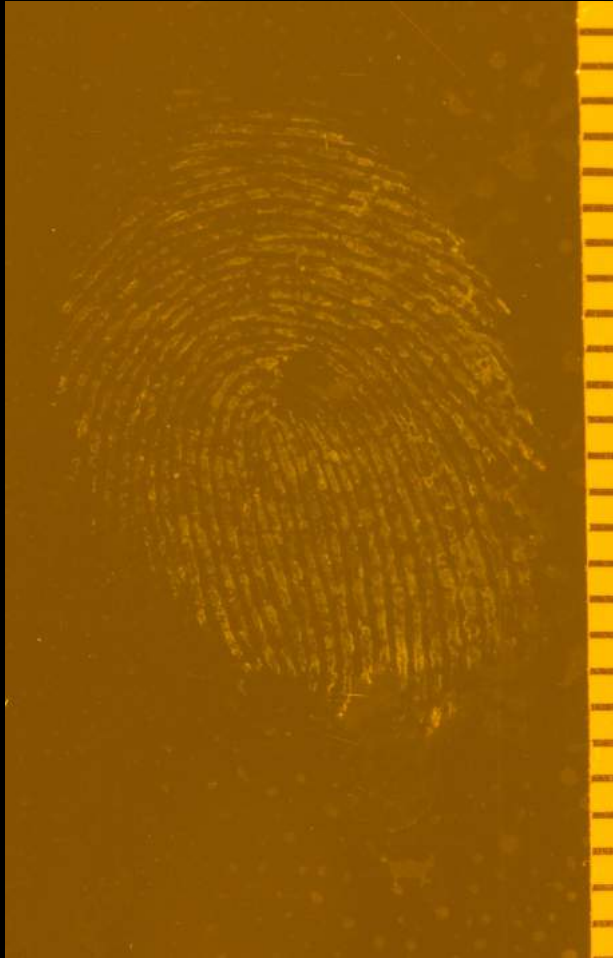


1st generation

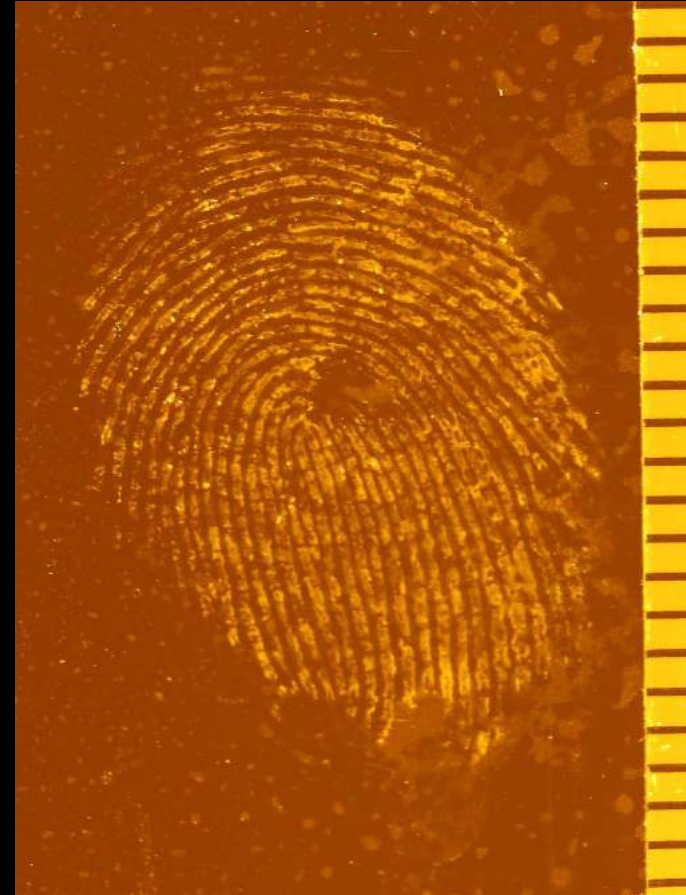


2nd generation

1,2 Idanedione/Thermal Paper



1st generation



2nd generation

Merbromin/Metal Soda Can



1st generation



2nd generation

Rhodamine 6G/Plastic Card