

New Fingerprint Breakthrough by Forensic Scientists

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Forensic scientists at the University of Leicester, working with Northamptonshire Police, have announced a major breakthrough in crime detection which could lead to hundreds of cold cases being reopened.

The University's Forensic Research Centre has been working with Northamptonshire Police's scientific support unit to develop new ways of taking fingerprints from a crime scene.

Researchers in the University Department of Chemistry and the Police's scientific support unit have developed the method that enables scientists to 'visualise fingerprints' even after the print itself has been removed. They conducted a study into the way fingerprints can corrode metal surfaces. The technique can enhance – after firing– a fingerprint that has been deposited on a small calibre metal cartridge case before it is fired.

Dr John Bond, Honorary Fellow at the University of Leicester and Scientific Support Manager at Northamptonshire Police said: "For the first time we can get prints from people who handled a cartridge before it was fired."

"Wiping it down, washing it in hot soapy water makes no difference - and the heat of the shot helps the process we use.

"The procedure works by applying an electric charge to a metal - say a gun or bullet - which has been coated in a fine conducting powder,

similar to that used in photocopiers.

“Even if the fingerprint has been washed off, it leaves a slight corrosion on the metal and this attracts the powder when the charge is applied, so showing up a residual fingerprint.

“The technique works on everything from bullet casings to machine guns. Even if heat vaporises normal clues, police will be able to prove who handled a particular gun.”

Dr. Bond’s initial findings, which prompted the joint study, have been announced in a paper in the American Journal of Forensic Science.

Professor Rob Hillman of the Department of Chemistry added: “It is very satisfying to see excellent fundamental science being applied to a practical problem. We are delighted to have the opportunity to collaborate with Dr. Bond and his colleagues and we look forward to some very exciting chemistry and its application to forensic science.”

As a result of the research, cases dating back decades could be reopened because the underlying print never disappears, say the scientists. The technique also works in cases where prints may be left on other metals.

Dr Bond added: "It's certainly possible hundreds of cold cases could be reopened because with this method the only way to avoid a fingerprint being detected is through abrasive cleaning as that takes a layer off the metal.

Dr Emma Palmer, Director of the University's Forensic Research Centre said: “This collaboration between the University of Leicester and Northamptonshire Police is an excellent example of applying research to a practical problem in crime detection.”

Dr Bond and Professor Rob Hillman of the Chemistry Department at the University now intend to take this research forward via a three-year Ph.D. studentship to commence next academic year. The new project will explore further the corrosion of metal by fingerprint residue and investigate how it might be used to detect more crime with forensic science.

Source: University of Leicester

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