The Future of Trace Evidence Detection: Are we wasting our time?

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In 1984 a Royal Commission overturned the conviction of accused murder Edward Charles Splatt. The case against Splatt was based on the apparent collective value of multiple trace evidence types albeit presented in an unsophisticated envelope. Many would now argue that this landmark ruling was the genesis of the Australian quality management systems we see governing forensic science today. Today, forensic science gives us:

- Analytical detection limits of parts per billion;
- DNA statistics that can indicate human source with so many zero’s that the world’s population seems insignificant;
- Probabilistic models that can be used to forensically ascribe levels of scientific certainty;
- Backlogs and politicking that dictate evidence collection and submission policy such that the administrative tail appears to be wagging the operational dog, and;
- Law enforcement organisations that are returning to outdated technology in order to balance evidence submissions with reduced budgets and more restrictive performance indicators.

In light of the above, there is a question that must be asked; is science outstripping the human ability to make meaning of the forensic instigation methods of today? Persistence, tertiary transfer, elemental profile, common provenance, environmental presence, DNA free, posterior odds; all words common today yet rarely spoken in the crime scene or laboratory of yesteryear. Some 25 years post Splatt, trace evidence again came under intense legal scrutiny during a high profile case in Western Australia involving the murder of a Supreme Court Registrar. Despite, an exhaustive and costly five year investigation which relied heavily on trace evidence such as Mineralogy, Paint, Fibres and Botany to support the case against the accused, he was acquitted. With these watershed cases in mind, what bodes for the future of trace evidence detection; has trace evidence failed and can it ever win?