

CHAPITRE III

LES TRACES

Il est impossible au malfaiteur d'agir, et surtout d'agir avec l'intensité que suppose l'action criminelle sans laisser des traces de son passage. Ces traces sont extrêmement diverses : il faut avoir présent à l'esprit que, dans chaque affaire, on peut en trouver d'une sorte différente. Outre les empreintes digitales déjà traitées au chapitre précédent, on étudiera ici les méthodes de recherche et d'identification des traces les plus fréquentes.

# Reclaiming Forensic Science: A Closer Look at the *Sydney Declaration*

Patrick Buzzini, Sheila Willis, Rebecca Bucht, Michelle D. Miranda



# The Sydney Declaration

- International group of forensic scientists engaged in conversations about the definition, the scope, and the fundamental principles of forensic science.
- Presented virtually through IAFS 2023 in May 2021.  
⇒ Resulted in a publication
- Goals:
  1. Share some thoughts about important topics within the *Declaration*.
  2. Encourage discussion about its implications for everyday operational work, training, education and research.

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The Sydney declaration – Revisiting the essence of forensic science through its fundamental principles

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ABSTRACT

Unlike other more established disciplines, a shared understanding and broad acceptance of the essence of forensic science, its purpose, and fundamental principles are still missing or mis-represented. This foundation has been overlooked, although recognised by many forensic science forefathers and seen as critical to this discipline's advancement. The *Sydney Declaration* attempts to revisit the essence of forensic science through its foundational basis, beyond organisations, technicalities or protocols. It comprises a definition of forensic science and seven fundamental principles that emphasise the pivotal role of the trace as a vestige, or remnant, of an investigated activity. The *Sydney Declaration* also discusses critical features framing the forensic scientist's work, such as context, time asymmetry, the continuum of uncertainties, broad scientific knowledge, ethics, critical thinking, and logical reasoning. It is argued that the proposed principles should underpin the practice of forensic science and guide education and research directions. Ultimately, they will benefit forensic science as a whole to be more relevant, effective and reliable.

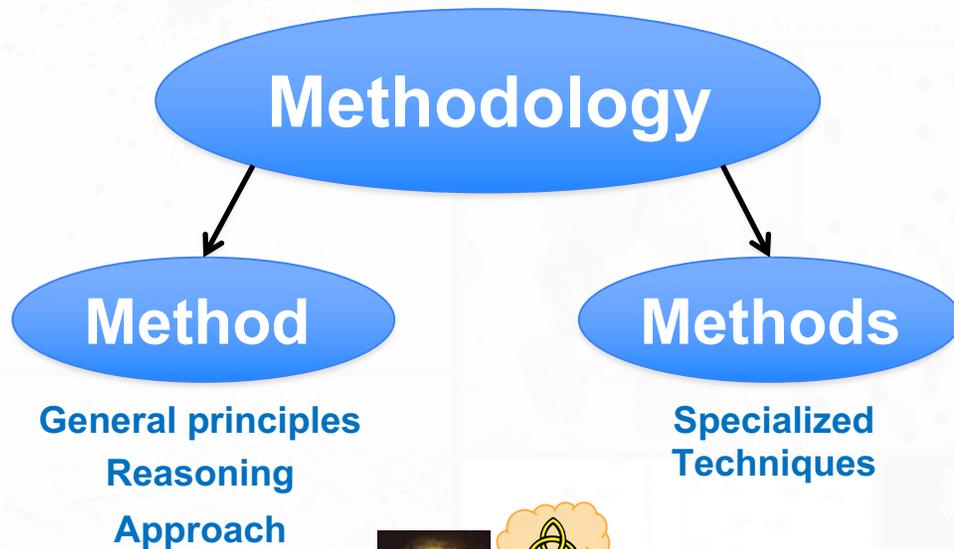
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**1. Introduction**

Forensic science is seen as a mainstay of the criminal justice system. This view is contrasted by ongoing and sometimes significant debates about its effectiveness and reliability that have developed over the last decade [1–4]. Critical issues that have been identified and are most discussed include backlogs [5], quality management [6–9], bias mitigation [10,11], and evidence evaluation and communication [12–15]. Many partial solutions have been proposed over the years; however, forensic science remains in an intractable state of crisis [16–19]. This crisis could be explained, at least partly, by the fact that most issues have been presented through organisational lenses (legal or various scientific disciplines) rather than through the forensic science discipline lens. The assumption that organisational aspects are important is beyond debate. However, as explained by Roux et al. [20], 'means' and 'processes' "... are highly dependent on the local political and legal structures that essentially vary between countries, jurisdictions and organisations, it is difficult to identify and agree upon measures that are 'universal' and effective in the long term" (p. 678). In other words, the debate so far has primarily overlooked the overall purpose(s) of forensic science and its fundamental object of study in favour of organisational and more mechanical aspects of its use. It is time to overcome this stumbling block, one that had already been identified by Kirk [21] almost sixty years ago:

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# Forensic science methodology and the **scientific method**



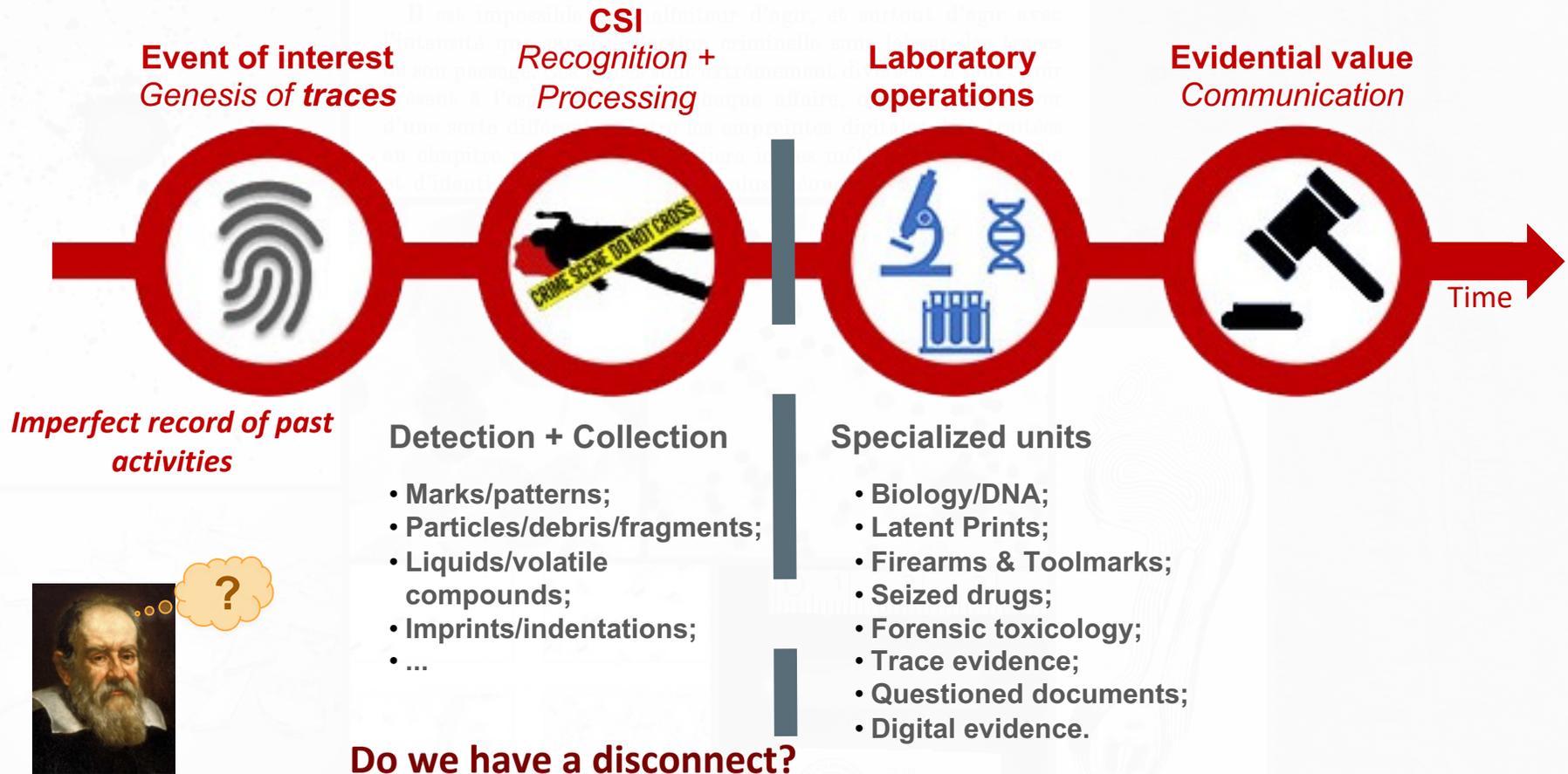
Galileo Galilei



## *The Sydney Declaration*

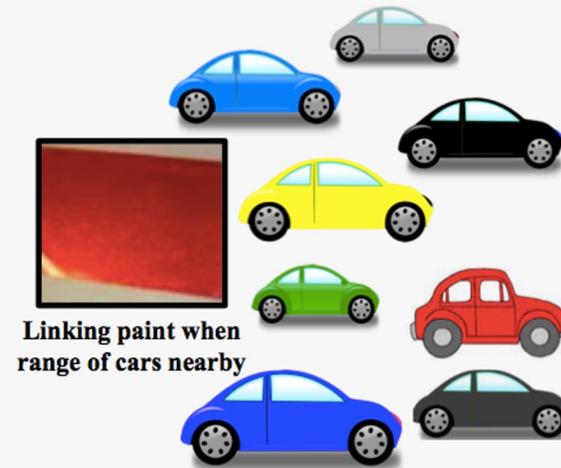
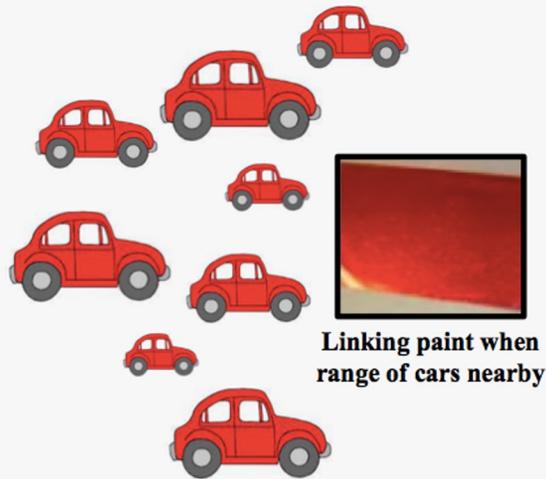
1. *Activity and presence produce traces that are fundamental vectors of information.*
2. *Scene investigation is a scientific and diagnostic endeavour requiring scientific expertise.*
3. *Forensic science is case-based and reliant on scientific knowledge, investigative methodology and logical reasoning.*
4. *Forensic science is an assessment of findings in context due to time asymmetry.*
5. *Forensic science deals with a continuum of uncertainties.*
6. *Forensic science has multi-dimensional purposes and contributions.*
7. *Forensic science findings acquire meaning in context.*

# From *traces* to evidence

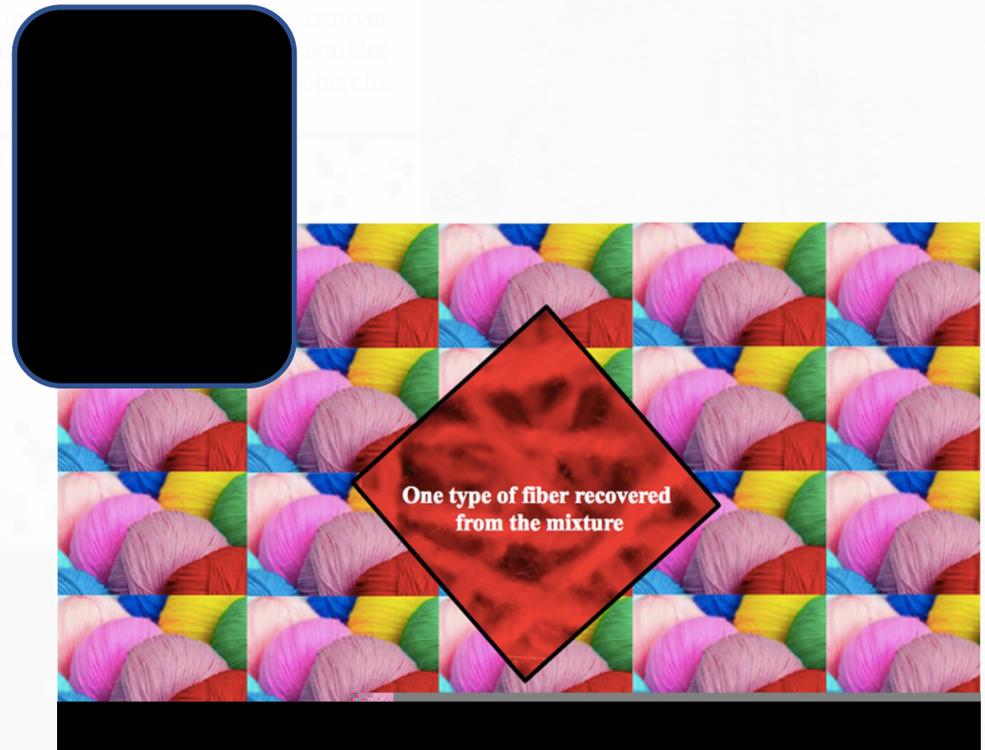
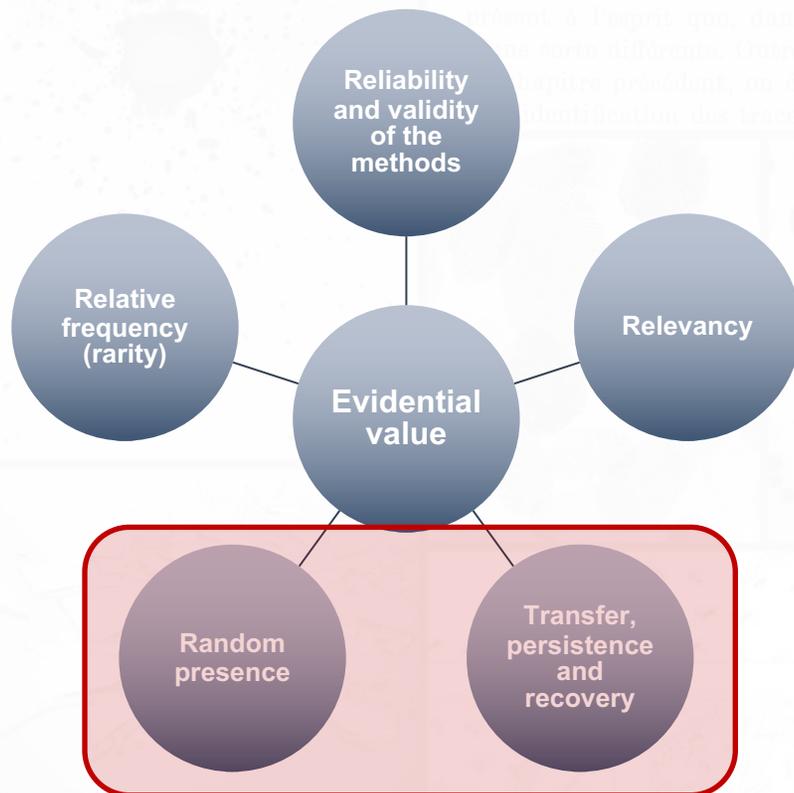


# Traces acquire meaning in context

Un objet qui suppose l'action humaine sans laisser des traces de son passage. Ces traces sont extrêmement diverses : il faut avoir présent à l'esprit que, dans chaque affaire, on peut en trouver de toutes sortes.



# More factors must be considered

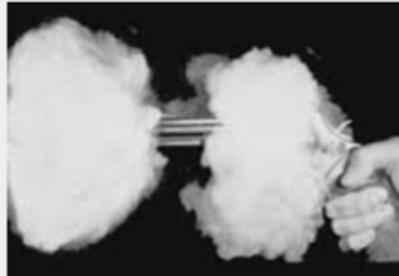


# On contextual information

... d'agir avec l'intention que suppose l'action criminelle sans laisser des traces de son passage. Ces traces sont extrêmement diverses : il faut avoir



Criminal act

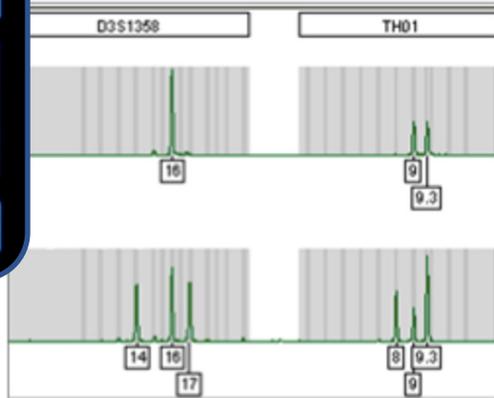


*Same residue?*



Shooting range

# More on the importance of contextual information



Values of same order of magnitude different inferences in different context?



**Extensive blood stains  
DNA profile matching victim**

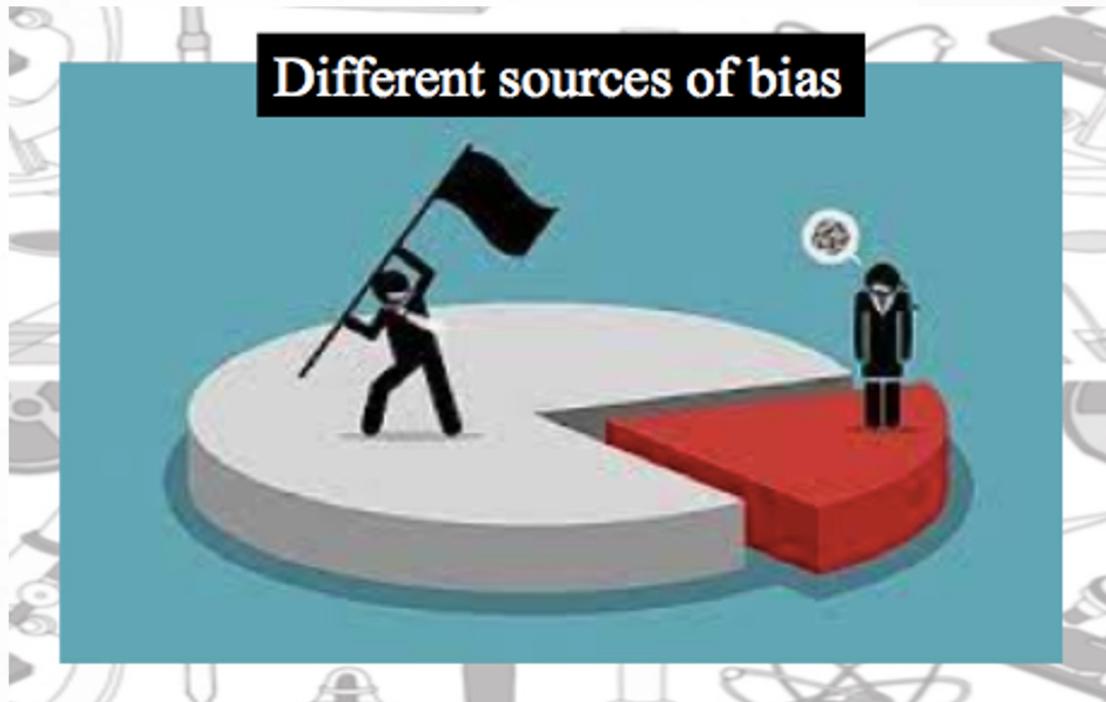
Sub-source LR =  $10^{32}$

**Mixed profile on the handle  
Some association with the POI**

Is it reasonable to suggest that we cannot have the same confidence in DNA from each situation?  
Should we consider alternative propositions?  
Are we considering factors other than Sub-source LR in either case?

de son passage. Ces traces sont extrêmement diverses : il faut avoir présent à l'esprit que, dans chaque affaire, on peut en trouver

# Relevant vs. non-relevant contextual information



## Key points

- ★ Forensic science is a scientific endeavor, focusing on the **value of traces** recovered at crime scenes and employing a **scientific methodology** throughout an investigation.
- ★ Results can be misleading when **relevant** contextual information is ignored or unavailable.
- ★ The development of the ***Sydney Declaration*** is a collaborative effort to define forensic science and articulate its fundamental principles in an effort to unify and improve the status and application of forensic science.

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Il est impossible au malfaiteur d'agir, et surtout d'agir avec l'intensité de son passage. Les traces sont extrêmement diverses. Il faut avoir présent à l'esprit d'une sorte d'index des traces les plus fragmentaires, au chapitre précédent, pour pouvoir les reconnaître et d'identification des traces les plus fragmentaires.

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*Where to From Here?*

IAFS Meeting in Sydney

<https://iafs2023.com.au/sydney-declaration/>



CHAPITRE III

