

# Texas Law Review

## *See Also*

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### Response

## Forensic Science Reform: Out of the Laboratory and into the Crime Scene

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In 2009, the National Research Council (NRC), the research arm of the National Academies, often called the most prestigious scientific institution in the United States, released what has been called a “landmark” report entitled *Strengthening Forensic Science in the United States: A Path Forward*.<sup>1</sup> The Report was the first NRC report to address forensic science in a general sense, rather than focusing on a single forensic discipline, technique, or even case.<sup>2</sup> The Report was written by an NRC Committee that was convened in response to a request by Congress for a report to “assess . . . the resource needs of the forensic science community.”<sup>3</sup> This request, in turn, was a response to a number of factors including lobbying by the Consortium of Forensic Science Organizations (CFSO), legal admissibility challenges to forensic evidence, and widespread criticism of current practices and standards in forensic science from a variety of sources, including the

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1. Paul C. Giannelli, Daubert and *Forensic Science: The Pitfalls of Law Enforcement Control of Scientific Research*, 2011 U. ILL. L. REV. 53, 53 (2011). See generally NAT’L RESEARCH COUNCIL OF THE NAT’L ACADS., COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCI. CMTY. ET AL, *STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD* (2009) [hereinafter NRC REPORT], available at <http://www.nap.edu/catalog/12589.html>.

2. Cf. NRC REPORT, *supra* note 1, at 1–2 (explaining the Senate Report ordering the NAS to write an analysis on all forensic disciplines).

3. *Id.* at 1.

National Academies themselves.<sup>4</sup> The Report has attracted attention for its generally critical comments on the current state of practice in American forensic science and for its thirteen recommendations for improvement, including one calling for the creation of a new federal agency, the National Institute of Forensic Science (NIFS).<sup>5</sup>

Of particular relevance to legal scholars were the Report's highly critical statements about the performance of the American judiciary in its role as a "gatekeeper" for forensic science.<sup>6</sup> In one notable passage, the Committee wrote: "The bottom line is simple: In a number of forensic science disciplines, forensic science professionals have yet to establish either the validity of their approach or the accuracy of their conclusions, and the courts have been utterly ineffective in addressing this problem."<sup>7</sup> Such a statement was all the more remarkable coming from a Committee that—unusually, if not unprecedentedly, for an NRC committee—was cochaired by a federal judge.<sup>8</sup>

The NRC Report has already generated a great deal of commentary from the legal academy.<sup>9</sup> Professor Laurin's new article *Remapping the Path Forward: Toward a Systemic View of Forensic Science Reform and Oversight* contributes to the discussion by drawing attention to a key omission in the NRC Report: its overwhelming focus on the laboratory, rather than the crime scene, as the locus of forensic science.<sup>10</sup> While I cannot speak for Professor Laurin in this regard, I should note that in speaking of an "omission," I do not intend any criticism of the work of the NRC Committee.

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4. See Erin Murphy, *What 'Strengthening Forensic Science' Today Means for Tomorrow: DNA Exceptionalism and the 2009 NAS Report*, 9 L., PROBABILITY & RISK 7, 12–13 (2010) (discussing the role of the Consortium in lobbying for the report and noting the presence of public criticism of current practice lodged by Donald Kennedy, a prominent member of the National Academies).

5. See Brent E. Turvey & William "Jerry" Chisum, *Preface to the Second Edition* of CRIME RECONSTRUCTION, at xi, xi (W. Jerry Chisum & Brent E. Turvey eds., 2d ed. 2011) (discussing the implications and recommendations of the NRC report and the attention it has gotten); see also Bernadette Mary Donovan & Edward J. Ungvarsky, *Strengthening Forensic Science in the United States: A Path Forward—Or Has It Been a Path Misplaced?*, CHAMPION, Jan.–Feb. 2012, available at <http://www.nacdl.org/Champion.aspx?id=23807> (discussing the reactions to the NRC report).

6. NRC REPORT, *supra* note 1, at 53.

7. *Id.*

8. *Id.* at v (identifying Judge Harry T. Edwards of the U.S. Court of Appeals for the District of Columbia Circuit as a committee cochair).

9. E.g., Conference, *Forensic Science for the 21st Century: The National Academy of Sciences Report and Beyond*, 9 L., PROBABILITY & RISK 1 (2010); Symposium, *Lessons from the Lab: Implications of the 2009 National Academy of Sciences Report on the Future of Forensic Science*, 2010 UTAH L. REV. 221; Symposium, *Forensic Science for the 21st Century*, 50 JURIMETRICS J. 1 (2009); Jennifer L. Mnookin et al., *The Need for a Research Culture in the Forensic Sciences*, 58 UCLA L. REV. 725 (2011).

10. Jennifer E. Laurin, *Remapping the Path Forward: Toward a Systemic View of Forensic Science Reform and Oversight*, 91 TEXAS L. REV. 1051, 1055 (2013).

As already noted, the NRC Committee did not have the luxury of focusing its attention on a single technique or discipline, but rather had to address the broad, messy, variegated, and ill-defined field called “forensic science.” It did so, moreover, under an extremely broad and vague remit from Congress.<sup>11</sup> Under such circumstances, the Committee had to make choices, and it is no criticism of their efforts to point out omissions of this sort.<sup>12</sup>

Professor Laurin is undoubtedly correct to note that the notion of forensic science discussed in the NRC Report is overwhelmingly one that we might call “laboratory-based.”<sup>13</sup> Forensic science, in the NRC Report, is essentially a series of laboratory assays, and central concerns include the validation, standardization, quality control, and reporting practices of those assays.<sup>14</sup> Professor Laurin is correct that this represents a somewhat attenuated notion of forensic science. While some might prefer to reserve the term forensic science for activities that occur in laboratories, most within the field would agree that the recovery of trace evidence for laboratory analysis is an equally important part of the forensic science enterprise. No matter how the term is used, moreover, no one would dispute that this “recovery” process greatly impacts whatever “products” emanate from forensic science.

Before proceeding further, it is perhaps worth endeavoring to explain why the NRC Committee chose to focus nearly exclusively on the laboratory, as opposed to the crime scene. Professor Laurin suggests that “the overwhelming majority of the scholarship and criticism that so heavily influenced” the NRC Report focused on laboratory-based problems in contemporary American forensic science.<sup>15</sup> I do not have any basis on which to judge how much influence the scholarly literature did or did not have on the NRC Report. However, I certainly agree that the scholarly literature has focused much more on laboratory-based problems than on crime scene recovery issues. The reason for this may be the same as the reason for the emphasis on laboratory issues in the NRC Report: laboratory problems fall more directly in the “wheelhouse” of the sorts of scientists and scholars who composed both the NRC Committee and the scholarly community which wrote about forensic science than do crime scene recovery issues. Scientists

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11. See Harry T. Edwards & Constantine Gatsonis, *Preface* to NRC REPORT, *supra* note 1, at xix (“The task Congress assigned our committee was daunting and required serious thought and the consideration of an extremely complex and decentralized system, with various players, jurisdictions, demands, and limitations.”).

12. Another important omission that has been noted by others was the Report’s total lack of discussion of events outside the United States, either for comparative purposes or in its search for possible models for the sorts of reforms it proposed.

13. Laurin, *supra* note 10, at 1055–56.

14. See NRC REPORT, *supra* note 1, at 12–13, 21–25 (discussing the deficiencies in the forensic science discipline, including the validation and standardization of laboratory tests).

15. Laurin, *supra* note 10, at 1055.

and scholars are familiar with such issues as how to pose an empirical question and muster data to answer it, how to validate an assay, how to calibrate an instrument, how to develop standards and quality controls for managing a laboratory, and how to report scientific results under uncertainty. The various deficiencies of the various forensic disciplines in these areas would have been readily apparent to the scientists and scholars who composed both the scholarly community and the NRC Committee. Indeed, these deficiencies may have seemed “low-hanging fruit” for scholars interested in improving forensic science. Professors Roux et al., forensic scientists who share Professor Laurin’s sense of the importance of the crime scene, may be correct to point out the absurdity of “agonising about the statistical relationship between a trace and its source, when probabilities themselves are so high that they become meaningless, because it is irrelevant in most cases and especially in common situations when there is no dispute on the source of a trace.”<sup>16</sup> But, it is not difficult to see why the NRC Committee might have found it equally absurd to “agonise” about the recovery of crime scene traces when the assays to which they would be subjected in the laboratory were not validated.

Crime scene recovery, in contrast, is a complicated, fraught, and messy process that perhaps does not analogize as easily to mainstream academic or industrial science. To be sure, crime scene recovery might be analogized to “data collection,” especially in field-based sciences like geology or field biology, and those disciplines could probably provide useful insights for crime scene recovery. But such data-collection processes are probably less intimately familiar to the majority of mainstream academic or industrial scientists working today than are laboratory processes. As noted in the NRC Report cited above, at the time the NRC Committee wrote, many forensic disciplines were using assays that were not validated.<sup>17</sup> Segments of the forensic science community were in a deplorable state of denial about the necessity of such validation, making statements like, “The failure to discover validity studies . . . does not mean the science is invalid.”<sup>18</sup> Under such circumstances, it is plausible to think that the NRC Committee assigned that validation of assays a higher priority than bringing greater rigor to the data-collection process.

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16. Claude Roux et al., *From Forensics to Forensic Science*, 24 CURRENT ISSUES CRIM. JUST. 7, 13 (2012).

17. NRC REPORT, *supra* note 1.

18. Kenneth E. Melson, *Embracing the Path Forward: The Journey to Justice Continues*, 36 NEW ENG. J. ON CRIM. & CIV. CONFINEMENT 197, 222 (2010); *see also* Joseph P. Bono, *Commentary on the Need for a Research Culture in the Forensic Sciences*, 58 UCLA L. REV. 781, 787 (2011) (“There are, however, methods in use in many laboratories around the world that produce valid results even if validation data cannot be produced.”).

As Professor Laurin correctly notes, however, crime scene recovery is also a crucially important aspect of the enterprise we call forensic science. This is so not merely for the trivial reason, often summarized by the phrase “garbage-in-garbage-out,” that false or contaminated data will produce misleading results no matter how valid the assay, how rigorous the standards and quality control, how careful the reporting practices.<sup>19</sup> It is also so for the more subtle reason that a variety of decisions made at the crime scene, such as how many and which items to submit for analysis and how samples are drawn from those items, may profoundly influence the results of the analysis.<sup>20</sup>

I cannot improve upon Professor Laurin’s careful and thorough explication of the importance of these issues and their legal implications, which are discussed at length in her excellent article. The primary contribution I think I can make is to provide context by drawing connections between Professor Laurin’s article, situated as it is within legal scholarship, and some remarkably parallel streams of discourse that are currently ongoing in other disciplines. Specifically, scholarship in forensic science and in history of science have both recently converged upon the crime scene as an important, but generally neglected, site of forensic activity. The forensic literature speaks of “a resurgence of interest in [the] crime scene.”<sup>21</sup> Professors Julian et al. note that “[t]he crime scene has not always been conceptualised as part of forensic science,” but today, “crime scene processing has come to be recognised as a critical stage in the forensic process.”<sup>22</sup> Further, they “argue that what happens at the front-end of an investigation is crucial to justice outcomes. The crime scene, thus, deserves much greater attention from researchers (criminologists and forensic scientists), as well as practitioners.”<sup>23</sup> Historians of science are also rediscovering the crime scene. Drs. Burney and Pemberton argue that historians’ interest in the history of criminology “has marginalised a contemporaneous forensic enterprise that, arguably, has greater relevance to the historical path that forensics followed over the next century—namely, the scientific investigation of the circumstances of a specific crime and the

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19. Olivier Ribaux et al., *Intelligence-Led Crime Scene Processing. Part I: Forensic Intelligence*, 195 FORENSIC SCI. INT’L 10, 11 (2010) (“rubbish in-rubbish out”).

20. William C. Thompson, *Subjective Interpretation, Laboratory Error and the Value of DNA Evidence: Three Case Studies*, 96 GENETICA 153, 154 (1995); William C. Thompson, *Tarnish on the ‘Gold Standard:’ Understanding Recent Problems in Forensic DNA Testing*, CHAMPION, Jan.–Feb. 2006, at 10, 10–11, available at <http://www.nacdl.org/Champion.aspx?id=1537>.

21. Olivier Ribaux et al., *Intelligence-led Crime Scene Processing. Part II: Intelligence and Crime Scene Examination*, 199 FORENSIC SCI. INT’L 63, 65 (2010).

22. Roberta Julian et al., “*Get It Right the First Time*”: *Critical Issues at the Crime Scene*, 24 CURRENT ISSUES CRIM. JUST. 25, 26 (2012).

23. *Id.* at 35.

identification of a specific culprit as an end in itself (criminalistics).”<sup>24</sup> Thus, all three of these streams of scholarship converge on a call for expanding our attention from the laboratory to the crime scene. In order to provide context and perhaps provoke further reflection, I will discuss these literatures in some detail.

Professor Laurin’s sentiments about the NRC Report’s neglect of the crime scene are remarkably consistent with those expressed in the forensic science literature. In perhaps the clearest such statement, Professor Robertson wrote:

[I]n the minds of many, and despite the portrayal of forensic science in the media through programmes such as *CSI*, forensic science is thought of as laboratory science. The “police” forensic sciences, such as crime scene work, firearms and fingerprint identification, are still regrettably thought of as a lower level technician activity. The recent US National Academies report on *Strengthening [F]orensic [S]cience in the United States: [A] [P]ath [F]orward* focused almost entirely on laboratory forensic science. Is the inference that crime scene work is not really science? Although much was made in the report about issues with pattern matching disciplines, such as fingerprints, lacking appropriate underpinning knowledge and standards this was focused on the end process and not on the field collection of such marks or “evidence.”<sup>25</sup>

Professors Roux et al. argued for a “conception” that brings crime scene examination to the forefront of the whole picture. “The [NRC] Report itself refused to address this issue in its introductory part, reinforcing the partition of the various forensic disciplines at the laboratory level.”<sup>26</sup> Professors Ribaux et al. took the NRC Report to task for an overemphasis on law-oriented processes that produce evidence, as opposed to “[s]ecurity processes” that fully exploit the “traces” found at crime scenes.<sup>27</sup> Like Professor Laurin, they propose “another path” forward than the one advocated by the NRC Report.<sup>28</sup>

Similarly, in a written statement for the record for the United States Senate Committee on Commerce, Science, and Transportation regarding the NRC Report, Dr. Rudin and Professor Inman wrote:

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24. Ian Burney & Neil Pemberton, *Making Space for Criminalistics: Hans Gross and Fin-de-Siècle CSI*, 44 *STUD. HIST. & PHIL. BIOLOGICAL & BIOMEDICAL SCI.* 16, 16 (2013). For an earlier work in this vein, see Claire Valier, *True Crime Stories: Scientific Methods of Criminal Investigation, Criminology and Historiography*, 38 *BRIT. J. CRIMINOLOGY* 88 (1998).

25. James Robertson, *Forensic Science, An Enabler or Dis-Enabler for Criminal Investigation?*, 44 *AUSTL. J. FORENSIC SCI.* 83, 85 (2012) (footnote omitted).

26. Roux et al., *supra* note 16, at 19 (citation omitted).

27. Ribaux et al., *supra* note 19, at 10.

28. *Id.*

Long before evidence ever reaches the laboratory, it must be identified and collected. The best analysis can never compensate for the failure to collect relevant evidence or store it properly. In many jurisdictions, law enforcement personnel, rather than criminalists, are assigned to process crime scenes. They often receive minimal training and the workforce is subject to rotation and turnover. We must direct more attention to training the officers that perform this critical work. And we must realize that collecting evidence requires a much more sophisticated approach than just donning a pair of latex gloves and moistening a swab to collect a blood stain. Even at this early stage in the process, a hypothesis, or better yet competing hypotheses, must be articulated, and the individual tasked with collecting evidence must search for relevant evidence with intelligence. Blindly collecting what appears to be obvious physical evidence will almost certainly leave important clues at the scene.<sup>29</sup>

Likewise, Dr. Schiffer's interviews with European forensic laboratory managers revealed that they suspected the crime scene might be as significant a locus of error as the laboratory.<sup>30</sup> Professors Julian et al. note, "[T]o date, most of the national and international research has focused on scientific practices rather than on the use of forensic science in the criminal investigative process."<sup>31</sup> And, Harrison notes that "[t]he scientific analysis that follows on from their initial evidence collection is commonly seen as being the definitively scientific activity, despite its reliance on data gathered from the scene."<sup>32</sup>

Based on similar concerns, Professor Laurin proposes that the NRC Report's reform agenda be "widened" beyond the laboratory to crime scene processing.<sup>33</sup> Thus, for example, as Professor Laurin suggests, the NRC Report's call for greater "standardization" could be applied to evidence collection.<sup>34</sup> Similarly, Professor Laurin persuasively argues that NIFS, the putative oversight entity for forensic science, should have oversight over

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29. *Turning the Investigation on the Science of Forensics: Hearing Before the S. Comm. on Commerce, Sci. & Transp.*, 112th Cong. 69 (2011) [hereinafter *Hearing*] (prepared statement of Norah Rudin, Forensic Consultant, and Keith Inman, Assistant Professor, California State University, East Bay).

30. Beatrice Schiffer, *The Relationship Between Forensic Science and Judicial Error: A Study Covering Error Sources, Bias, and Remedies* 197 (2009) (unpublished Ph.D. thesis, University of Lausanne), available at [http://www.unil.ch/webdav/site/esc/shared/These\\_Schiffer.pdf](http://www.unil.ch/webdav/site/esc/shared/These_Schiffer.pdf).

31. Roberta D. Julian et al., *What Is the Value of Forensic Science? An Overview of the Effectiveness of Forensic Science in the Australian Criminal Justice System Project*, 43 *AUSTL. J. FORENSIC SCI.* 217, 219 (2011).

32. K Harrison, *Is Crime Scene Examination Science, and Does It Matter Anyway?*, 46 *SCI. & JUST.* 65, 67 (2006).

33. Laurin, *supra* note 10, at 1057.

34. *Id.* at 1108-09.

crime scene, as well as laboratory, practices.<sup>35</sup> These points about the importance, and general neglect, of the crime scene are well-taken, and I certainly do not disagree. Far more challenging, however, is Professor Laurin's argument that consideration of the crime scene implies that some of the NRC Report's proposals, if adopted, might in fact "exacerbate[]" the "deficiencies in forensic science usage."<sup>36</sup> Most provocatively, Professor Laurin argues that crime laboratory independence, perhaps the core recommendation of the NRC Report, should be "reconsidered."<sup>37</sup>

Laboratory independence has long been perhaps the chief proposed reform among those American scholars who have been engaged in work calling for forensic reform,<sup>38</sup> and the NRC Report came out strongly in favor of it.<sup>39</sup> As Professor Laurin notes, "independence was the *sine qua non* of forensic science reform."<sup>40</sup> Closely related to the idea of laboratory independence are proposals for "sequential unmasking."<sup>41</sup> These proposals endeavor to minimize "confirmation bias" (the natural psychological tendency to see what you expect to see) among forensic analysts.<sup>42</sup> When investigators convey, explicitly or implicitly, their theory of the crime to analysts, those analysts may be primed to interpret ambiguous evidence in a manner consistent with that theory. The effects of such psychological biases, it is argued, can be reduced by a process of "sequential unmasking" in which

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35. *Id.* at 1112–14.

36. *Id.* at 1106.

37. *Id.* at 1111–12. In this Comment, I address only one of two examples that Professor Laurin offers in support of her argument that the NRC Report's recommendations may be counterproductive. Professor Laurin's second example, the NRC Report's supposed "commitment" to generating more forensic evidence "early" in investigations, is a subtle one that would be difficult for me to engage fully in the space provided. Here I will simply note that Professor Laurin's concerns about early evidence seem somewhat in tension with her concerns about laboratory independence. To oppose independence is to favor greater communication between investigators and forensic scientists which would seem to me to necessarily imply more early evidence.

38. Perhaps the clearest such statement is Paul C. Giannelli, *The Abuse of Scientific Evidence in Criminal Cases: The Need for Independent Crime Laboratories*, 4 VA. J. SOC. POL'Y & L. 439, 470 (1997), but the proposal is common in legal treatises dealing with problems in American forensic science.

39. NRC REPORT, *supra* note 1, at 183–84; *see also* Geoffrey S. Mearns, *The NAS Report: In Pursuit of Justice*, 38 FORDHAM URB. L.J. 429, 430 n.4 (2010).

40. Laurin, *supra* note 10, at 1111.

41. D. Michael Risinger et al., *The Daubert/Kumho Implications of Observer Effects in Forensic Science: Hidden Problems of Expectation and Suggestion*, 90 CALIF. L. REV. 1, 45–46 (2002) (advocating for a "wall of separation" dividing forensic science examiners and "examination-irrelevant information about a case"); Dan E. Krane et al., Letter to the Editor, *Sequential Unmasking: A Means of Minimizing Observer Effects in Forensic DNA Interpretation*, 53 J. FORENSIC SCI. 1006, 1006 (2008) (describing sequential unmasking as "the most efficacious means of reducing the compromising influence of observer effects on the utility of forensic DNA evidence").

42. *Id.*

analysts' exposure to "domain-irrelevant information" is limited to what is necessary for the completion of competent analyses.<sup>43</sup> However, Professor Laurin argues:

[A] systemic view of forensic science oversight suggests that there are very real concerns raised about the design of an independent laboratory system that should be considered in connection with reform. How would fully independent crime laboratories assist, if at all, with evidence collection and crime scene response? To the extent a role is envisioned, would independence delay response or undermine working relationships between law enforcement officers and their "independent" colleagues? Will evidence collection instead fall within the domain of law enforcement, and do resources exist to manage that transition? In the course of an investigation, would fully independent laboratories mean more formalized submission and prioritization decisions for testing? Would discretion in regard to submission and prioritization be committed to investigators or to analysts? These are critical questions to be answered in connection with the independence proposal.<sup>44</sup>

And, indeed, such questions seem to be echoed in an interview with the founding director of the pioneering independent crime laboratory that has recently been opened in the District of Columbia.<sup>45</sup> Again, Professor Laurin's reservations on this point dovetail with emerging forensic literature on the crime scene which opposes independence far more strongly than Professor Laurin does. Professor Margot argues:

Forensic science has to be part of investigative services of law enforcement. . . . The scientist must have full control of the scene and have access to knowledge about the case to be selective about

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43. Krane et al., *supra* note 41, at 1006.

44. Laurin, *supra* note 10, at 1103 (footnote omitted).

45. Zoe Tillman, *In Q&A, D.C. Forensic Sciences Chief Says Lab Moving Toward Accreditation*, LEGALTIMES BLOG (Jan. 28, 2013, 12:40 PM), <http://legaltimes.typepad.com/blt/2013/01/in-qa-dc-forensic-sciences-chief-says-lab-moving-toward-accreditation.html> ("[W]e've had some discussions about what does independence mean. We can say we're independent from law enforcement, great, but what does that mean? How does that change what we do? And we realized that in the forensic community, there probably isn't a good notion of that, of really what that means. . . . [The D.C. Public Defender Service is] going to come in and go through and give us their viewpoint on what we can do better. And this is one of those notions of independence that [is] interesting: not so we can take our protocols and change them in their favor, but we'll have two sets of views of saying, here's how it's done, do you see issues with the science from your viewpoint as a legal expert? . . . We had a situation where another law enforcement agency had a case that may be related to a case in the District. Well, how do we work that out? Because they want to come in and have access to some things, well how do we work that out? Because we're independent, do we do that? Do we give the evidence back to [the Metropolitan Police Department] and let them do that? Do we let the attorneys? How do we work these things out so that it's in the best interest of the science in the case.").

potential findings. This is in total contradiction with one of the most forceful positions taken by various legal authorities, social scientists and the NAS – that forensic science should be removed into an ivory tower and away from the investigative services. This seems to be the trend with researchers in the US . . . but this solution is worse than the problem they claim to solve.<sup>46</sup>

Similarly, Professor Robertson notes: “It has been suggested, naively in my view, that forensic scientists should not be provided with information about a case as this may result in so-called observer bias.”<sup>47</sup>

These forensic scientists advocating for a return of attention to the crime scene are not merely arguing against sequential unmasking. Rather, many of them are advocating a wholesale reconceptualization of “forensic science”<sup>48</sup> oriented around the treatment of the crime scene as a source of “intelligence,” rather than “evidence.”<sup>49</sup> This new approach has been labeled “intelligence-led crime scene processing.”<sup>50</sup> What is perhaps most interesting for a legal audience about this emerging movement is their provocative argument that “forensics” has historically oriented toward the law (or “justice” or “courts”) and, more specifically, the trial.<sup>51</sup> Forensics has thus been designed to produce “evidence” for use, or threatened use, at the trial. The trial, however, as is well-known, is increasingly rare, and even orienting toward the “shadow” of the trial limits the potential utility of “traces.” Wouldn’t it make more sense, they argue, to orient the exploitation of traces toward the broader field of “policing” or to the even broader field of “security”?<sup>52</sup>

Indeed, these forensic scientists cast the NRC Report’s call for laboratory independence as a move in precisely the wrong direction. Forensic science should be aiming for greater integration between its component parts (personnel based at crime scenes and personnel based in laboratories), as well as greater integration with, rather than independence from, police, and even, pushing the argument furthest, prosecutors and government intelligence agencies. Thus, Professors Roux et al. respond to the independence recommendation by arguing:

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46. Pierre Margot, *Forensic Science on Trial—What Is the Law of the Land?*, 43 AUSTL. J. FORENSIC SCI. 89, 92 (2011).

47. Robertson, *supra* note 25, at 86.

48. As opposed to “forensics,” which is defined as a set of analytic techniques derived from other disciplines. Roux et al., *supra* note 16, at 7.

49. Ribaux et al., *supra* note 19, at 11; *see also* Simon Walsh & John Buckleton, *DNA Intelligence Databases*, in FORENSIC DNA EVIDENCE INTERPRETATION 439, 439 (Buckleton et al. eds., 2005).

50. Ribaux et al., *supra* note 19, at 14.

51. *Id.* at 12.

52. *Id.*; *see also* Roux et al., *supra* note 16, at 13.

[A]n organisational measure devised to mitigate a specific type of bias can potentially cause damage to other processes by fragmenting them in another way and slowing down, if not stopping the circulation of information.

. . . The report of the 9/11 Commission[] recommends more sharing and integration of data in order to connect the dots, which is in direct contradiction to some of the NAS recommendations!<sup>53</sup>

Professor Ribaux et al. note with dismay:

Beyond some rare exceptions . . . there is no indication on the agenda of forensic science laboratories to prioritise the broadening of their role. On the contrary and, as the [NRC] report proposes, there seems to be a tendency to distance forensic science from any involvement in intelligence or investigation.<sup>54</sup>

Such a vision of investigation is, of course, strongly reminiscent of the notion of “scientific policing” that arose in the early twentieth century.<sup>55</sup> But it is of course the failure of the scientific policing movement, the fact that the police did not, in fact, become “scientific,” that necessitated the call for independence in the first place. The proponents of “intelligence-led crime scene processing” know this; their manifestoes are imbued with nostalgia and a sense of opportunities squandered: Vollmer, the coiner of the term “scientific policing,” and Edmond Locard, one of the founders of forensic science, “embody the whole territory that forensics has moved away from, up the point where it has now lost its object of study.”<sup>56</sup> Forensic science “pioneers . . . must be turning in their graves seeing the current situation in many countries.”<sup>57</sup> “Crime scene processing is at the crux of the forensic science pioneers’ works of the early parts of the 20th Century.”<sup>58</sup> Intelligence-led crime scene processing is an unabashed attempt to recapture a lost vision of both forensic science and scientific policing.

Contemporary forensic scientists’ sense of nostalgia lends a salience to new work by historians which seeks to recapture the process by which “the ‘crime scene’ as a distinct analytical space, bounded conceptually and operationally by explicit rules of practice, and recognized as such by forensic investigators and the broader public alike, became the object of sustained

53. Roux et al., *supra* note 16, at 12 (citation omitted).

54. Ribaux et al., *supra* note 19, at 11.

55. See generally GENE E. CARTE & ELAINE H. CARTE, POLICE REFORM IN THE UNITED STATES: THE ERA OF AUGUST VOLLMER, 1905-1932 (1975); ERIC H. MONKKONEN, POLICE IN URBAN AMERICA, 1860-1920 (1981); SAMUEL WALKER, A CRITICAL HISTORY OF POLICE REFORM: THE EMERGENCE OF PROFESSIONALISM (1977); August Vollmer & Albert Schneider, *The School for Police as Planned at Berkeley*, 7 J. AM. INST. CRIM. L. & CRIMINOLOGY 877 (1917).

56. Roux et al., *supra* note 16, at 16.

57. Margot, *supra* note 46, at 101.

58. Ribaux et al., *supra* note 21, at 65.

consideration.”<sup>59</sup> These historians have focused on the role of Hans Gross (and, to a lesser extent, Edmond Locard), who, they contend, “[t]hrough less celebrated by historians than are other criminalist pioneers . . . is arguably the progenitor of what we now recognize—on our TV screens and in our newspapers—as ‘CSI.’”<sup>60</sup> These historical figures are celebrated as forebears by contemporary proponents of intelligence-led crime scene processing.<sup>61</sup> Of particular relevance for our discussion here is Drs. Burney and Pemberton’s chronicling of Gross’s treatment of the very issue we have been discussing above: cognitive bias. Gross posited an occupational role which Drs. Burney and Pemberton translate as “Investigating Officer” (IO), who would be charged with what we would today call “crime scene investigation.”<sup>62</sup> Drs. Burney and Pemberton show that Gross spent considerable time explicating the necessity of “shield[ing]” the IO “from the vicissitudes of perceptual and cognitive error, . . . confront[ing], and conquer[ing], . . . ‘the most deadly enemy of all inquiries’—preconceived theories,” and exercising “cognitive self restraint.”<sup>63</sup> As Drs. Burney and Pemberton note, Gross believed that

making matter testify accurately was itself a complex task fraught with possibilities for error. This is because research into the contingencies of cognition and perception applied as much to the IO as to any other testifier. For the crime scene to speak in a secure language of material fact, in other words, its interlocutor needed to be prepared in advance to receive and appreciate its meaning.<sup>64</sup>

The uncanny prescience of such statements in anticipating the contemporary tension between the concerns of proponents of laboratory independence and sequential unmasking and the movement toward intelligence-led crime scene processing should be clear.

Is this tension irreconcilable? Dr. Rudin and Professor Inman, for example, are strong proponents both of further attention to evidence collection (as quoted above)<sup>65</sup> and of sequential unmasking.<sup>66</sup> Indeed, they argue that forensic science should function “as an *independent check in the administration of justice*,” while also arguing strongly for increased attention to the crime scene.<sup>67</sup> The positions can be reconciled through the use of an

59. Ian A. Burney, *Our Environment in Miniature: Dust and the Early Twentieth-Century Forensic Imagination*, 121 REPRESENTATIONS 31, 33 (2013).

60. *Id.* at 35.

61. Margot, *supra* note 46, at 97–99; Roux et al., *supra* note 16, at 15–16.

62. Burney & Pemberton, *supra* note 24, at 17.

63. *Id.* at 19, 22.

64. *Id.* at 19.

65. *Supra* note 29 and accompanying text.

66. Krane et al., *supra* note 41.

67. *Hearing*, *supra* note 29, at 70.

“independent case manager,” as suggested by the proponents of sequential unmasking, a scheme that Professor Laurin discusses favorably.<sup>68</sup> The independent case manager would allow for decisions to be made about what evidence to collect and how and what tests to run, informed by the crime circumstances, while also allowing for assays to be performed in a state of cognitive “independence” from knowledge of those circumstances. In addition, it should be noted that the NRC Report called not only for independent crime laboratories, but also for an independent oversight agency, a proposal that Professor Laurin suggests extending to the states.<sup>69</sup>

However, Rudin and Inman’s happy medium seems unlikely to satisfy the proponents of intelligence-led crime scene processing who envision a more radical integration of forensic science and crime investigation. Indeed, it is possible to read the intelligence-led crime scene processing texts as advocating the wholesale appropriation of crime investigation by an institution called “forensic science” that would be conceived more broadly than we conceive that term today. This provocative vision has some undoubted appeal in that it promises to turn all crime investigation scientific. Indeed, Professor Laurin, in her conclusion, seems to be pushing in a similar direction when she calls for imposing “standards to promote attitudes and practices consistent with scientific values” upon the governance of the crime scene.<sup>70</sup> Admittedly, Professor Laurin seeks to achieve this goal through changes in legal doctrine, whereas the proponents of intelligence-led crime scene processing are seeking to orient forensic science away from the law entirely. But, such provocative suggestions might lead us to wonder why personnel called “police” have custody of crime scenes and jurisdiction of crime investigations in the first place. Why not a scientific agency?

Despite their appeal, however, such proposals should perhaps be treated with caution. One reason for caution may be found in the very label “intelligence-led crime scene processing.” These “forensic scientists” charged with exploiting crime scene traces<sup>71</sup> for every mote of “intelligence” that might in any way impact public security would be scarcely distinguishable from intelligence agencies or state police. In seeking to turn all police into scientists, such proposals would risk turning all forensic scientists into police.

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68. Laurin, *supra* note 10, at 1109–1110.

69. The federal government has just announced the creation of a nonindependent national oversight commission that will be at least half controlled by law enforcement in the form of the U.S. Department of Justice.

70. Laurin, *supra* note 10, at 1116.

71. And, by this point in the game, why limit it to “crime scene” traces? Why not such noncrime-scene traces as “shed” DNA? Elizabeth E. Joh, *Reclaiming “Abandoned” DNA: The Fourth Amendment and Genetic Privacy*, 100 NW. U. L. REV. 857, 867 (2006).

Such concerns do not trouble the proponents of intelligence-led crime scene processing because, in their view, the power of scientific reasoning is so strong that it would overcome any sense of bias toward the state. Their response to the bias argument is that any such concerns should be assuaged by the knowledge that the analysis of the crime scene will “be controlled by a framework based on a hypothetico-deductive reasoning process such as we advocate for, which implicitly includes abduction by imagining potential causes to observations under accepted general rules or laws.”<sup>72</sup> By this, it is presumably meant that they will apply logic to govern the inferences that can be made from those traces and that logic will overcome potential bias.

Proponents of independence would respond that such arguments misunderstand the fundamental point that unconscious bias cannot be remedied through force of will, or through supposed adherence (and who will police that adherence?) to logical reasoning. The appeal to logical reasoning is essentially the same defense that the forensic science community has long mounted against bias concerns: that true “scientists” can rid themselves of bias.

Professor Laurin, of course, does not go nearly as far as the proponents of intelligence-led crime scene processing. Her article is undoubtedly helpful in drawing attention to the NRC Report’s neglect of the crime scene. Her proposal to extrapolate principles like standardization and independent oversight from the laboratory to the crime is well-reasoned and promising. Her comments on how legal doctrine might better acknowledge “a world in which forensic analysts are understood as independent scientific contributors to the adjudicative process” are suggestive and might even be pushed forward further to question the very notion of police custody of the crime scene itself.<sup>73</sup> Better integration between the laboratory and the crime scene would be helpful, and the independence of laboratory assays might be attained through the use of an “independent case manager,” as Professor Laurin suggests. The principle of independence, however, should be preserved. Forensic analysis should not be carried out by personnel who are structurally bound to a particular interpretation of crime scene traces. The wholesale conversion of forensic science into a police intelligence enterprise on behalf of the state, as some others have suggested, goes too far.

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72. Ribaux et al., *supra* note 21, at 68.

73. Laurin, *supra* note 10, at 1117.