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## A Tale of Two Cities?

### Locating the History of Forensic Science and Medicine in Contemporary Forensic Reform Discourse

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In July 2015, I attended the Locating Forensic Science and Medicine Conference in London, from which the volume that is now in your hands (or on your screen) was developed. I arrived at the conference having flown overnight from another conference on forensic science with a quite different location in Washington, DC.

The conference in Washington was convened by the National Institute of Standards and Technology (NIST)—they are the people in charge of weights and measures in the United States. The conference was called “Forensic Science Error Management.”<sup>1</sup> That I was the only person to make the transit between these two conferences provoked me to reflect upon the relationship between forensic history and what we might call “contemporary forensic reform,” as well as on my own role as a historian of forensic science who has fortuitously become an actor in contemporary forensic reform.

I am interested in the way that the past is represented in artifacts from contemporary forensic reform discourse, like the NIST conference. I would suggest that the conference was typical of such discourse in two principal ways: (1) in portraying the present historical moment—which I date as the period from 2009, when the landmark US National Research Council (NRC) report *Strengthening Forensic Science in the United States*<sup>2</sup> was published, to the present—as a moment of new beginning, a fresh start for forensic science; (2) in portraying the history of forensic science, even until very recently, as a sort of “dark age” that either will, should, must, or might be swept away by this new beginning. The sense of history-in-the-making was palpable in Washington: the conference was billed as “the first-ever international symposium devoted exclusively to the topic of forensic science error management.” Is it true that no one thought much about forensic error until now? My own work has shown that there is some truth to that—that fingerprint examiners at least,

and some other disciplines as well, were claiming to have a “zero error rate” well into the twenty-first century. The conference website’s characterization of forensic error as a “taboo topic” suggests that the NIST conference was in some sense meant to commemorate the liberation of the notion of error in forensic science. Somewhat extraordinarily, this 2015 conference was meant to mark the historical moment when interested parties could finally talk about error in forensic science without immediately getting bogged down in argument about whether such a thing even exists.

This way of locating forensic history is not confined to the United States. Consider a suite of papers published around the same time in the *Philosophical Transactions of the Royal Society* as the output of “the adventure that culminated in the Royal Society’s twin events designed to enable and encourage the forensic science community to come together to discuss and plan a vision for the future, not only for the UK, but as partners in a global ecosystem.” The editors’ introduction is titled “Time to Think Differently: Catalysing a Paradigm Shift in Forensic Science,” signaling both the initiation of a new historical period and the obligatory reference to pop-Kuhnianism. The sense of a pivotal historical moment is palpable when the editorial declares: “There is no doubt that the forensic science ecosystem stands at a critical crossroads and there must be a common responsibility taken for the changes that need to be enforced. Of one thing we are absolutely certain, our current path is destined for disaster if we choose to carry on simply doing more of the same.”<sup>3</sup> In a rather extraordinary outburst of millenarianism, the editors’ introduction then announces:

The time has come to reject the inadequacies of the past and embrace a healthy new culture that can steer our ecosystem into calmer and more productive waters, a culture of confidence and professionalism which supports openness and trust, where research, technology, leadership and workforce development are all valued as a collegiate part of the holistic community. If this is the bright future that we wish to achieve and the legacy we wish to leave behind, then we must genuinely work together and not let the current woes of the discipline and the egos of an intransigent old guard smother the green shoots of a paradigm shift that broke new ground in the octocentennial year of the Magna Carta.<sup>4</sup>

In another article, the same authors invoke the widespread sense of crisis that pervades contemporary forensic science:<sup>5</sup> “There is no doubt that forensic science is in crisis, and it currently faces its most uncertain future.

However, our future is in our own hands and what we, as a criminal justice community, choose to do next will be our legacy.”<sup>6</sup>

Of course, the notion that today is the period of forensic reform is itself ahistorical. Forensic science has been arguably reforming itself throughout its history. But I do think the present moment can be characterized as one in which a forensic reform effort of a certain kind at a certain scale is occurring. Although the seeds of the present forensic reform movement are decades old, it is still useful to treat 2009 as a sort of watershed moment when the impetus to reform was taken seriously, by players that mattered—and in this case, that appears to be primarily governments, with a somewhat smaller role played by scientific institutions like the US National Academies, the American Association for the Advancement of Science (AAAS), the Royal Society, the American Statistical Association, and so on. Just to review: in the United States, in response to the NRC report, the White House Office of Science and Technology Policy created a Subcommittee on Forensic Science with a suite of working groups; a National Commission on Forensic Science was created; NIST created an elaborate Organization of Science Area Committees (OSACs), consisting of committees and subcommittees populated by more than four hundred individuals; the AAAS is carrying out a “gap analysis” of scientific research in forensic science; and more.

I don’t want to overstate the erasure of history in contemporary forensic reform discourse. Many contemporary forensic thinkers write with a profound sense of history.<sup>7</sup> Jeffrey Jentzen’s contribution to this volume is an excellent example. David Stoney’s recent review paper, which attempts to lay out future directions for trace evidence, begins with an extensive historical review of debatable necessity for his overall argument.<sup>8</sup> Alex Biedermann and James Curran recently wrote a devastating critique of another article. When I wrote Biedermann to congratulate him on the critique, he responded, “My main motivation behind this was to keep some historical sources alive.” And indeed that is what his critique does.<sup>9</sup>

Nonetheless, I do want to argue that, in general, contemporary forensic reform discourse *locates* the history of forensic science in a past that is somehow clearly distinct from the reformist present. There are perhaps several presumed bases for the disjuncture between past and present, but chief among them is the rise of statistical thinking in forensic science—the notion that we have finally come around to conceiving of all forensic evidence in a probabilistic manner. And, obviously, this has something to do with the NIST conference’s notion that it is now—just now—acceptable to

talk about uncertainty in forensic science. But other presumed bases may be the involvement of important actors in reforming forensic science. Governments come to mind, but also scientific institutions like the National Academies and the Royal Society.

Having myself transited between the two worlds, I want to suggest that these two groups thinking about forensic science might be able to do more for one another than either has entirely realized. The historical work presented in this volume can offer a useful perspective on the discussions that are occurring in Washington. The voluminous contemporary discussion of the 1993 US Supreme Court decision *Daubert v. Merrell Dow*, for example, might be informed by Marcus Carrier's account of the development of implicit set of "standards" for the use of German forensic toxicology in court. The very topic of the Washington conference—forensic error—is fraught by its fundamental unknowability: we know about forensic error because of a few exposed cases, but we don't know about the unexposed cases.<sup>10</sup> Contemporary discussions of this issue might be informed by Mitra Sharafi's comments about the "limits of archive" in detecting instances of the fabrication of blood evidence in colonial India. Contemporary discussions of the urgent need to apply algorithms and statistics for forensic science might be informed by Projit Mukharji's discussion of the "steady push toward matematization and mechanization of forensic work" among a dynasty<sup>11</sup> of document examiners in colonial India. Lawyers and scholars who are agitated about the inability of criminal defendants to inspect the proprietary algorithms that produce an increasing proposition of forensic evidence might be informed by Binyamin Blum's description of the inability to access the reasoning process behind the conclusions of tracking Doberman Pinschers in early twentieth-century Palestine. For a different case study, one might consider Gagan Singh's account of Punjabi trackers who as humans were considered partially accountable for their knowledge, but as natives were also considered partially inscrutable. The use of tracking evidence without validation presages contemporary concerns about the use of forensic techniques absent validation. Contemporary debates over the increasing ubiquitous use of biometric identifiers might be informed by José Ramón Bertomeu Sanchez's discussion of Federico Olóriz's efforts to develop a national fingerprint register in early twentieth-century Spain. And the combatants in the battles over the abusive head trauma diagnosis for infant death (known as "shaken baby syndrome") would be informed by Bruno Bertherat's discussion of Ambroise Tardieu's theories about infanticide in late nineteenth-century France. Those

concerned with the effect of American politics on the politics of forensic science (e.g., the failure to renew the National Commission on Forensic Science; see below) may be informed by Trais Pearson's account of forensic science as "civic epistemology" in Thailand.<sup>12</sup>

In a somewhat different vein, as a new member of the team of scholars who edit the National Registry of Exonerations, currently the definitive source on wrongful convictions in the United States, I read with growing unease Ian Burney's cultural history interpretation of our distant ancestor, Erle Stanley Gardner's *Court of Last Resort*. If, as Burney argues, Gardner's efforts to expose wrongful convictions took on the cultural form of the "frontier posse," how will future cultural historians interpret the efforts of my co-editors and me, who naively imagine ourselves as rather less flamboyant and culturally neutral historical actors?

Here I want to emphasize two ways that I think location is important in contemporary forensic reform discourse, ways that will be important in shaping the role that forensic science plays in future society. The first, locational issue concerns what we might call the institutional location of forensic science. One of the recommendations—perhaps the principal recommendation—of the NRC report was to *relocate* forensic science, that forensic laboratories should be removed from law enforcement. Second, the report recommended that the new regulatory agency that it posited should be created in order to reform American forensic science must not be located in the US Department of Justice (DOJ) or any other law enforcement or prosecutorial agency. The NRC report explicitly considered a variety of locational **possibility** for this hypothetical new agency—called the "National Institute of Forensic Science," or NIFS—rejected them all, and pronounced that the NIFS must be an independent agency.

These recommendations are interesting because the location of forensic science in law enforcement seems to me to be precisely one of those institutional formations that exist only because a certain contingent set of historical circumstances has made it so. To me, there is reasonably broad assent—I discuss an exception below—regarding the notion that, in a perfect world being designed *de novo* today, forensic science would *not* be located in law enforcement. It would have some sort of institutional location that more strongly conveyed its allegiance to science, rather than to law enforcement. It is harder to reach agreement that it is possible, feasible, or desirable to change the institutional location of forensic science *now* that it has been historically embedded in law enforcement. At least one recent work in

contemporary forensic reform claims that the embedding of forensic science in the “prosecutorial entities dates back as far as 13th century China.”<sup>13</sup> The chapters of this volume trace many of the small parts of that history by which forensic science got embedded in the state, and more specifically law enforcement.

“Locating Forensics” took place in the United Kingdom. The centrality of the British Empire as a network for the dissemination of forensic knowledge and techniques is explored in Heather Wolfram’s “Forensic Knowledge and Forensic Networks in Britain’s Empire: The Case of Sydney Smith” (chap. 11, this volume). In the United States, the United Kingdom represents the epitome of locating forensic science outside law enforcement, in a sense: the privatization of the Forensic Science Service (FSS) into a sort of quasi-state, for-profit entity; the subsequent disastrous closing of the FSS; and the resulting devolution of forensic service to either (1) truly private, for-profit corporations or (2) true law enforcement locations inside local police forces. Interestingly, another model of an independent forensic laboratory recently imploded, with the firing of the leadership of the District of Columbia crime laboratory.

In the end, the NCFS was located at the intersection of the DOJ and NIST; it was jointly administered by the two agencies. The NCFS was officially chaired by the deputy attorney general of the United States. A recent change in leadership of the DOJ, then, brought about the precipitous demise of the NCFS, and its replacement by a Forensic Science Working Group controlled entirely by the DOJ and consisting entirely of people who work for the DOJ.<sup>14</sup> Thus the creation of the NCFS, which was in some sense the realization of the forensic reformist dream expressed most prominently by the NRC report, had another side to it. Contrary to what the NRC report envisioned, the NCFS has more firmly embedded forensic science, first in the law-enforcement-prosecutorial complex and, more broadly, in the state in general. Current events may cause us to wonder whether we will see the increasing concentration of forensic science in the state, even if we can also discern a concomitant trend toward private, for-profit enterprise as well.

The second locational issue is not unrelated. The NRC report specifically—and, I would argue, contemporary forensic science reform discourse generally—has been taken to task from many different angles for presuming that the location of forensic science is in the laboratory. And I think that is certainly a fair characterization of both the report and much of contemporary discourse. These critiques argue that the true location of forensic science is

at least equally, if not more so, the crime scene. These critiques argue that contemporary forensic reform discourse has taken on the relatively easy task of trying to reform laboratory procedures—and make them more like familiar, mainstream scientific laboratory procedures—while evading the far more difficult task of reforming the handling of crime scenes. The investigation of crime scenes, after all, is a peculiar activity that is not easily categorized as either science or policing. As such, it does not have ready analogues in mainstream scientific activity the way that laboratory analyses do. And yet, as these critics points out, most forensic analyses start with recovery from the crime scene.

At least three streams of such criticisms are apparent. The first is represented by Jennifer Laurin, a law professor who, from a legal perspective, argues that contemporary forensic reform discourse gives short shrift to crime scenes, with legal implications that I don't have time to discuss here.<sup>15</sup> The second was represented at the NIST conference by Peter DeForest, who I think would not be insulted if I described him as an “old-school” generalist criminalist and who was trained by Paul Kirk (a character in Ian Burney's “Spatters and Lies: Contrasting Forensic Cultures in the Trials of Sam Sheppard, 1954–66,” chap. 4, this volume) in the legendary, now-defunct criminalistics program at the University of California, Berkeley. As DeForest put it, “laboratory scientists have become increasingly disconnected from the scene investigation.” He argued that “forensic scientists must be in control of their own investigations.”<sup>16</sup> In short, he seeks to physically relocate forensic scientists from the laboratory to the crime scene.

The third stream is the forensic school of thought that goes under the title “intelligence-led policing” (ILP), the most prominent advocates of which are Swiss and Australian forensic scientists such as Olivier Ribaux, James Robertson, and Claude Roux. These thinkers contend that historically forensic science has become too oriented around the law and the trial, and not enough around other sorts of state actions that can be responsive to information about criminal activity, such as policing or the rather vaguely defined suite of activities that today we call “security.”<sup>17</sup>

As an aside, the ILP literature falls into the category of forensic literature that I described above with a strong sense of history. Intelligence-led policing sees itself as the true fulfillment of the future envisioned by figures like Hans Gross and Edmond Locard. This vision, they argue, got derailed by a number of factors during the twentieth century, but the principal one seems to have been the differentiation, rather than integration, of the roles of police



officer and scientist. I have described ILP as “unabashedly nostalgic” in an article. I was sad to see that that was interpreted as an insult. I am confident that historians understand that it was intended as, at worst, a neutral observation and perhaps even as a compliment.

Without going into too much detail, the vision of ILP is one that is centered on exploiting all traces at the crime scene that might have intelligence value and deploying that information for the state security apparatus, while focusing much less on criminal prosecutions and trials. One fascinating thing about ILP is that it pushes forensic science in the opposite direction as that of human factors discourse, which is today probably the more dominant discourse, at least in the United States. Rather than arguing for isolating forensic scientists from the criminal investigation—and thus firmly locating them in the laboratory—ILP calls for more closely integrating them into the investigation. ILP does not deny the existence of bias; it simply believes that the benefits of integration outweigh the costs in bias. I think this is a philosophically defensible position—unlike the position that bias does not exist—even if I don’t agree with it. But what really worries me about ILP is that its vision taken to its logical conclusion, in seeking to turn police into scientists, will probably result in turning all forensic scientists into police. ILP’s orientation toward the state security apparatus looks a lot a state police force.<sup>18</sup>

I predict we will see in the next few years more of this showdown between the ILP and the human factors visions, a showdown that has already begun. In part, this battle will concern the location of forensic science: at the crime scene or in the laboratory, in the police or “in science,” whatever that means. However this battle goes, it illustrates just one way in which “locating forensic science” matters not just to the history of forensic science, but to contemporary forensic science as well.

#### NOTES

1. See the 2015 International Forensics Symposium website, accessed July 27, 2018, <https://www.nist.gov/director/2015-international-forensics-symposium>.
2. National Research Council (NRC), *Strengthening Forensic Science in the United States: A Path Forward* (Washington, DC: NRC, 2009).
3. Sue Black and Niamh Nic Daeid, “Time to Think Differently: Catalysing a Paradigm Shift in Forensic Science,” *Philosophical Transactions of the Royal Society B* 370 (2015): 20140251, 3.
4. Black and Daeid, “Time to Think Differently,” 3.
5. Kelly M. Pyrek, *Forensic Science under Siege: The Challenges of Forensic Laboratories and the Medico-Legal Investigation System* (Amsterdam: Academic Press, 2007).

6. Éadoin O'Brien, Niamh Nic Daeid, and Sue Black, "Science in the Court: Pitfalls, Challenges and Solutions," *Philosophical Transactions of the Royal Society B* 370 (2015).
7. E.g., Christophe Champod, Keith Inman, Pierre Margot, Norah Rudin, David Stoney, and Franco Taroni and colleagues come to mind.
8. David A. Stoney and Paul L. Stoney, "Critical Review of Forensic Trace Evidence Analysis and the Need for a New Approach," *Forensic Science International* 251 (2015): 159–70.
9. Alex Biedermann and James Curran, "Drawbacks in the Scientification of Forensic Science," *Forensic Science International* 245 (2014): e38–e40.
10. Chief among these exposed cases, and prominently featured at the NIST conference, is the Mayfield fingerprint misidentification. Sharia Mayfield and Brandon Mayfield, *Improbable Cause: The War on Terror's Assault on the Bill of Rights* (Salem, NH: Divertir, 2015).
11. Mukharji's discussion of a family dynasty of document examiners evokes Sulner's discussion of his own family dynasty. Andrew Sulner, "Critical Issues Affecting the Reliability and Admissibility of Handwriting Opinion Evidence—How They Have Been Addressed (or Not) since the 2009 NAS Report, and How They Should Be Addressed Going Forward: A Document Examiner Tells All," *Seton Hall Law Review* 48, no. 3 (2018): 631–717.
12. See also Samson Lim, *Siam's New Detectives: Visualizing Crime and Conspiracy in Modern Thailand* (Honolulu: University of Hawai'i Press, 2016).
13. Suzanne Bell et al., "A Call for More Science in Forensic Science," *Proceedings of the National Academy of Sciences* 115, no. 18 (2018): 4541–44.
14. Spencer S. Hsu, "Sessions Orders Justice Dept. to End Forensic Science Commission, Suspend Review Policy," *Washington Post*, April 10, 2017.
15. Jennifer E. Laurin, "Remapping the Path Forward: Toward a Systemic View of Forensic Science Reform and Oversight," *Texas Law Review* 91 (2013): 105–18.
16. Peter DeForest, "Forensic Science—The Quality Assurer?," in *Proceedings of the 2015 International Symposium on Forensic Science Error Management*, ed. John M. Butler (Arlington, VA: National Institute of Standards and Technology, 2015).
17. E.g., Olivier Delémont, Sonja Bitzer, Manon Jendly, and Olivier Ribaux, "The Practice of Crime Scene Examination in an Intelligence-Based Perspective," in *The Routledge International Handbook of Forensic Intelligence and Criminology*, ed. Quentin Rossy, David Décary-Héту, Olivier Delémont, and Massimiliano Mulone (London: Routledge, 2018), 86–101; Olivier Ribaux and Stefano Caneppele, "Forensic Intelligence," in *Routledge International Handbook of Forensic Intelligence and Criminology*, 136–48.
18. Simon A. Cole, "Forensic Science Reform: Out of the Laboratory and into the Crime Scene," *Texas Law Review* 91 (2013): 123–36.