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## Response to Haack and Edmond/Roach Articles

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I am grateful to Professors Edmond and Roach<sup>1</sup> and Professor Haack<sup>2</sup> for their thoughtful replies to my paper, *Law's Treatment of Science: From Idealization to Understanding*. Much like my experience after reading "A Contextual Approach to the Admissibility of the State's Forensic Science and Medical Evidence,"<sup>3</sup> and Haack's contributions,<sup>4</sup> I have come away from reviewing Edmond and Roach and Haack's replies with a heightened awareness that the admissibility of scientific evidence is significant and complicated. Both replies have raised important concerns that have demanded further attention from me, which I turn to here. My response to Edmond and Roach's *Reply* is in Part I below, followed by my response to Haack's *Reply* in Part II.

I. *Reply to Edmond and Roach*

1. *The asymmetrical demonstrable reliability approach*

In *ACA*, Edmond and Roach argued that Crown expert evidence should be subject to a more onerous admissibility standard than defence expert evidence. In their *Reply*, Edmond and Roach notably deemphasize the asymmetrical approach that they advocate in *ACA*. In their recap of the position they advanced in *ACA*, Edmond and Roach comment that the asymmetrical aspects of their approach were qualified.<sup>5</sup> Later in the *Reply*, the authors note that a "slightly higher admissibility standard will have a range of system benefits regardless of whether it is applied asymmetrically or symmetrically,"<sup>6</sup> again destressing their asymmetrical approach.

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1. My paper [*Law's Treatment of Science*] appears in this volume. Edmond and Roach's reply, "Trial By Theory: A Response to Acharya's 'Law's Treatment of Science: From Idealization to Understanding'" also appears in this volume [*Edmond and Roach's Reply* or the *Reply* in Part I].

2. Susan Haack, "A Match Made on Earth: Getting Real about Science and Law," this volume [*Haack's Reply* or the *Reply* in Part II].

3. (2011) 61 UTLJ 343 [*ACA*].

4. Susan Haack, "Irreconcilable Differences? The Troubled Marriage of Science and Law" (2009) 72 *Law & Contemp Probs* 1 ["Irreconcilable Differences"]; Susan Haack, "Truth and Justice, Inquiry and Advocacy, Science and Law" in *Putting Philosophy to Work—Inquiry and its Place in Culture* (Amherst, NY: Prometheus Books, 2009) ["Truth and Justice"]; and "Entangled in the Bramble-Bush, Science in the Law" in Susan Haack, *Defending Science Within Reason* (Amherst, NY: Prometheus Books, 2003) at 233.

5. *Edmond and Roach's Reply*, *supra* note 1 at 60.

6. *Ibid* at 70.

In addition, they express confusion over why I endorse the Goudge Recommendations, but not the approach they argue for in *ACA*, remarking that “[i]n practice, the differences between the Goudge recommendations and our own proposal are...relatively minor.”<sup>7</sup> But the Goudge Inquiry Report did not recommend an asymmetrical model. By suggesting that their approach is not significantly different from the Goudge Inquiry approach, Edmond and Roach further diminish the importance of the asymmetrical aspect of their proposal.

I acknowledge that in *ACA*, Edmond and Roach take note that their asymmetrical approach may not find widespread support, and that if that is the case, then they could live with an “across the board” application of demonstrable reliability for admissibility. But their argument in *ACA* undoubtedly calls for an asymmetrical approach to admissibility of expert evidence. In *ACA*, Edmond and Roach introduce their argument as follows:

We are supportive of *more demanding standards for the admissibility of incriminating expert evidence*. Indeed, we go beyond current legal practice and proposals for reform to argue for demonstrable reliability *whenever the state adduces expert evidence to support a criminal conviction* (or induce a plea)...*At the same time, we would recommend that expert evidence adduced by the defense need only satisfy a basic reliability threshold*, but would require that judges apply admissibility standards in a robust contextual fashion even should our asymmetrical proposal, which places higher standards on the state, not find favour.”<sup>8</sup>

Throughout *ACA*, Edmond and Roach insist that their demonstrable reliability standard should be applied to “incriminating expert evidence,” clearly demonstrating the asymmetry of their approach. Indeed, they criticize the Law Commission of England and Wales for rejecting an asymmetrical admissibility model.<sup>9</sup> The asymmetrical approach was also advocated in Edmond’s paper, “Pathological Science? Demonstrable Reliability and Expert Forensic Pathology Evidence,” which was prepared as a research paper for the Goudge Inquiry. There, Edmond explained:

The basic contention is that courts should not admit *expert evidence adduced by the prosecution* unless there are good grounds for believing that the evidence is reliable. Expressed more precisely, judges should not admit *expert evidence adduced by the prosecution* unless that evidence is demonstrably reliable.<sup>10</sup>

7. *Ibid* at 88.

8. *ACA*, *supra* note 3 at 345-346 [emphasis added].

9. *Ibid* at 376 and 379.

10. Gary Edmond, *Pathological Science? Demonstrable Reliability and Expert Forensic Pathology Evidence* (Toronto: Government of Ontario, 2007), prepared as a research paper for the Goudge Inquiry [*Pathological Science*] at 1 [emphasis added].

It is not until their final remarks in *ACA* that a symmetrical approach is again given a brief mention. In their conclusion, Edmond and Roach state that:

For pragmatic reasons, we could contemplate tempering the strength of our asymmetrical commitments. *While we believe that criminal justice systems should entrench a different admissibility standard for expert evidence adduced by the state from those for expert evidence adduced by those accused of crime*, the most important single reform would be to raise the admissibility standard across the board.<sup>11</sup>

Edmond and Roach's acknowledgment that an asymmetrical admissibility standard may not find favour does not lead to the conclusion that they *advocate* anything less than an asymmetrical model. Instead, their statements suggest that the authors will tolerate a symmetrical approach, if necessary. In *Law's Treatment of Science*, I provided an argument for why the asymmetrical approach argued for in *ACA* cannot find favour. I argued that Edmond and Roach's commitment to the asymmetrical proposal reflected an underemphasis on the importance of procedural consistency as the source of legitimacy of our legal system.<sup>12</sup> The asymmetry of their approach is one of the reasons that I was able to endorse the Goudge Inquiry approach to admissibility over the approach presented in *ACA*. The Goudge Inquiry did not advocate an asymmetrical approach to admissibility of expert evidence; the *ACA* approach did.

Along with the asymmetric component of the *ACA* approach, I also offered a critique of the demonstrable reliability standard itself. This element of my critique remains the same, whether or not the demonstrable reliability standard is applied symmetrically or asymmetrically. I argued that the demonstrable reliability standard risks allowing empirical reasoning to usurp legal decision-making. Pointing to Edmond and Roach's proposed treatment of the Crown evidence in *Abbey*,<sup>13</sup> I noted that the demonstrable reliability standard required that the link between an expert's evidence and the legal issue at stake must be empirically supported before the evidence would even be admitted.<sup>14</sup> This suggests that empirical support is required to satisfy the *legal* question of relevance. I therefore suggested that Edmond and Roach display a preference for empirical reasoning that can result in unsound legal reasoning. Because empirical evidence is typical of scientific study, I suggested that the demonstrable

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11. *ACA*, *supra* note 3 at 408 [emphasis added].

12. *Law's Treatment of Science*, *supra* note 1 at 21-29.

13. *R v Abbey*, 2009 ONCA 624.

14. *Law's Treatment of Science*, *supra* note 1 at 24-25.

reliability standard (as expounded in the application to *Abbey*) contained an inadvertent idealization of science, coupled with an underappreciation of legal processes.

Edmond and Roach do not answer my critique in this respect, except to say that they “acknowledge that there will be complex debates around what levels of accuracy ought to sustain admissibility and what to do about fields or areas where testing and evaluation is difficult—as in the simmering controversy around *Abbey*.”<sup>15</sup>

## 2. *The problem of wrongful convictions*

In *ACA*, it was evident that Edmond and Roach’s foremost concern was the prevention of wrongful convictions. This concern is featured in their *Reply*. They criticize the procedural legitimacy framework on the basis that it leads me to understate, and maybe even ignore, the calamitous impact of wrongful convictions. In their *Reply*, they express their dissatisfaction with my approach, which displays their commitment that wrongful convictions are illegitimate:

Where a person is imprisoned and the evidence seems to suggest real doubts about their guilt or indicates innocence, we are not satisfied by “legal facts” derived through procedurally regular processes. To the extent that the legal system is unwilling to rectify such anomalies, outcomes are illegitimate and inconsistent with espoused criminal justice principles.<sup>16</sup>

Edmond and Roach’s discontent is misdirected. First, if evidence presented at trial suggested real doubts about the accused’s guilt, yet a conviction was entered anyway, then the outcome is illegitimate under the procedural legitimacy framework. The outcome is procedurally improper because the “beyond a reasonable doubt” standard of proof was misapplied. Second, where new knowledge or evidence becomes available after a conviction, and raises doubts about the person’s guilt, then by no means does the procedural legitimacy argument preclude ministerial reviews to rectify a wrongful conviction. Given their severity, reviewing cases where a wrongful conviction may have occurred is surely essential, even if the conviction was a procedurally sound outcome.

Certainly, the procedural legitimacy argument leads to the conclusion that factually inaccurate outcomes can be legitimate, if they are made in accordance with legal procedure. Edmond and Roach cannot agree because they are unwilling to label a wrongful conviction as legitimate, whether or not it is procedurally sound. This is not logically sustainable.

15. *Edmond and Roach’s Reply*, *supra* note 1 at 70.

16. *Ibid* at 72.

Starting from the premise that a standard of proof of certainty is too onerous, we all accept the legitimacy of a standard of proof that is *less than certainty*. If we are willing to allow legal facts to be considered “proven,” even if they are not *certainly* true, then it follows that we accept a risk of factual inaccuracy in legal fact-finding. Since we accept the risk of factual error, we must also accept that the risk will eventually manifest (i.e., a factual error will occur). It is illogical to conclude that a factually inaccurate outcome is illegitimate, and can invalidate the legitimacy of the legal system, when at the same time, we accept a standard of proof that is less than certainty. By accepting the standards of legal proof of *less than certainty*, we accept that factual errors *will* occur. It is improper to call into question the entire legal system when such factual errors *do* occur.

Committed to this logic, I maintain that factually inaccurate outcomes can still be legitimate legal decisions. Of course, these factual inaccuracies can be devastating to litigants, particularly in the context of wrongful conviction. Wrongful convictions, and other factually inaccurate legal decisions, represent extremely unfortunate manifestations of the reality that adjudication is an inevitably uncertain task.

Edmond and Roach’s disapproval of my argument that factual inaccuracy does not *itself* delegitimize a legal outcome reveals the internal inconsistency embedded within their approach. If a wrongful conviction can never be considered legitimate, then it must follow that individuals must only be convicted on the standard of certainty. In this line of reasoning, the only possible solution that could save the legitimacy of the legal system is increasing the standard of proof for convictions to a level of certainty.<sup>17</sup>

But Edmond and Roach do not advocate that convictions can or should only be entered on the basis of certainty. They *do* accept a standard of proof that is less than certainty, so they start from the same premise as I do—we all accept the legitimacy of our standards of proof. As explained above, if we accept a standard of proof that is less than certainty, we must accept the risk that at some point, a factual inaccuracy will occur. Yet Edmond and Roach suggest that wrongful convictions, even those that are procedurally proper, are wholly illegitimate, and any system wherein wrongful convictions occur is producing illegitimate outcomes. This approach is incoherent because it is impossible to accept the legitimacy of

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17. In *Law's Treatment of Science*, at 27-28, I pointed out that increasing the standard of proof was the logical conclusion of Edmond and Roach’s approach in *ACA*. In their reply, Edmond and Roach imply that I advocate for this approach. I do not. My purpose was to show that their line of argument, which starts from the premise that wrongful convictions are wholly unacceptable, can lead only to the conclusion that the standard of proof must be raised.

proving legal facts on a basis of something less than certainty, and at the same time reject the reality that a factual error will occur.

Procedural legitimacy is grounded on the notion that legal standards of proof expressly contemplate uncertainty and risk of factual error. When Edmond and Roach suggest that I consider the standard of proof to be an adequate safeguard against factual impropriety, they mischaracterize my argument.<sup>18</sup> My argument is that so long as we accept our standards of proof as legitimate, it is only a matter of logic that we must accept the possibility of factually inaccurate outcomes. If factual accuracy cannot dictate legitimacy, then what is the source of legitimacy of adjudicative outcomes? My conclusion is that the legitimacy of the legal system is maintained through consistent application of legal procedure to all litigants, equally, without compromise.

## II. *Reply to Susan Haack*

In *Law's Treatment of Science*, I focused on Haack's contributions that compared the adjudicative system and science.<sup>19</sup> I suggested that her project of presenting the essentials of law and science to diagnose the tension between the fields is compromised because procedural legitimacy, being a fundamental feature of adjudication, is underemphasized. This undervaluation was significant to my theme in *Law's Treatment of Science*: procedure plays a critical role in maintaining the legitimacy of uncertain inquiries and outcomes. Of course, my primary concern was (and remains) legitimacy in the legal sphere, but I noted that uncertainty is inherent in scientific inquiry as well as adjudicative inquiry.

### 1. *Science*

Predictably, Haack has criticized my comments on science. Without a doubt, I presented a simple notion of science. It was sufficient, because

18. *Edmond and Roach's Reply*, *supra* note 1 at 78-80.

19. As Haack points out in her *Reply*, "over the last decade or so, [she has] done a good deal of work on issues concerning scientific testimony" (*Haack's Reply*, *supra* note 2 at 41). The abundance of her input into the science and law topic is catalogued in footnote 3 of her *Reply*. I look forward to further study of these contributions. Haack's criticism, however, that my "superficial understandings" of science and law are "compounded by the fact that [I am] apparently unaware that the couple of papers of [hers] that [I have] read are part of a much larger, and intimately integrated, body of work," is unduly demanding. I did not assume that a number of different articles, published in a number of different places, were so closely interconnected to one another, that any critique of one is necessarily incomplete without a study of all the others. I understood the comparison between science and law to be a particularly central theme in "Truth and Justice" and "Irreconcilable Differences," *supra* note 4. In *Law's Treatment of Science*, I had prefaced my comments on Haack's works with a quotation from "Irreconcilable Differences," which Haack found "tendentiously edited" because I stopped at the first tension between science and law that was listed: "the investigative character of science and the adversarial culture of our legal system." Haack does go on to list further tensions between science and law, but I had understood the first item listed to contain the central theme of her comparison between science and law.

my point was modest: science, like law, involves an uncertain inquiry. No matter how complicated and nuanced one's concept of science and scientific progress, it must be acceptable that whatever science is, it is an uncertain inquiry. There is no guarantee that a scientific conclusion of today, even one that is generally accepted, will not be falsified or negated in one way or another tomorrow. It is unnecessary to look any further than the general discourse of science to discern that scientists inherently accept the uncertainty of their work. Scientists make falsifiable hypotheses, and set out to test them. If they remain unfalsified, hypotheses may eventually become theories. The theories may gain general acceptance, but they remain theories, not "truths." As Haack notes, although science is an inquiry seeking to accurately explain phenomena, this does not suggest that "scientific truths are ever known with absolute certainty."<sup>20</sup>

Since an outcome can be "scientific" but not certainly true, it follows that the legitimacy of a scientific inquiry cannot be determined purely by whether the outcome is factually accurate or not. This, I suggested, leads to the conclusion that the method or procedure of scientific inquiry must be its legitimizing factor. The significance of method as the defining feature of scientific inquiry is explicit in Thomas Huxley's quotation that Haack suggests is the starting point of her "Critical-Common-sensist account" of science: "the man of science simply uses with scrupulous exactness the methods which we all...use carelessly."<sup>21</sup> Here, Huxley suggests that the method, or the process of the inquiry, is what makes a scientist's work distinguishable from a layperson's ponderings. My purpose in *Law's Treatment of Science* was not to unequivocally define scientific methods. Rather, the idea was to show that an inquiry that inherently accepts its own conditions of uncertainty cannot legitimize itself by its substantive outcomes alone. This lends itself to the conclusions that methods play a foundational role in determining the legitimacy of an inquiry, and its outcome. This, I suggested, is a similarity that science and law share.

I used the inherent uncertainty of scientific inquiry as an introduction to my more central project of demonstrating how the inherent uncertainty in the legal process makes the importance of procedure in judicial decisions self-evident. Even though we know that adjudicative outcomes are not certainly true, we accept the legitimacy of legal inquiry and its outcomes, even if those outcomes cannot be guaranteed to be factually accurate. The

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20. "Irreconcilable Differences," *supra* note 4 at 7.

21. *Haack's Reply*, *supra* note 2 at 49, quoting Thomas Huxley from JW Grove, *In Defense of Science: Science, Technology and Politics in Modern Society* (Toronto: University of Toronto Press, 1989).

basis for that acceptance, I argued, must be that adherence to procedure maintains the legitimacy of adjudicative outcomes.

For my purpose, it was not necessary to enter into a philosophical debate about the nature of science, or to engage with questions like “how is scientific inquiry connected to the world?” or, ‘what distinguishes good, solid, honest, thorough scientific inquiry from bad, flimsy, dishonest, partial, or skimpy work?’”<sup>22</sup> These are interesting questions in their own right, but they are not centrally relevant to the project of determining admissibility and appropriate use of expert evidence. As I noted in *Law’s Treatment of Science*, expert evidence should be treated consistently in the legal process whether the evidence can be labelled scientific or not. Treating some types of evidence differently than other types on the basis that it is understood to be science, must be avoided, because legal procedures must be applied consistently to all litigants. If not, then procedural consistency, and therefore the overall legitimacy of the adjudicative system, is at stake.

When Haack comments that my “conception of what makes a legal decision or system legitimate implies that what threatens legitimacy is violation of procedure,” she accurately describes my viewpoint. But she then asks, “So how, exactly, is idealizing science supposed to be the threat?”<sup>23</sup> Idealization of science translates in the adjudicative arena as deference to science. Such deference prevents procedural rules from being applied properly to scientific evidence. The problem of deference to science distorting legal fact-finding was explained by Sopinka J. in *R v Mohan*,<sup>24</sup> and is set out in *Law’s Treatment of Science*.<sup>25</sup>

## 2. *Legitimacy of the adjudicative process*

Haack maintains that I have presented a very skeletal concept of the legitimacy of the adjudicative system.<sup>26</sup> First, the goal of *Law’s Treatment of Science* was to demonstrate that the acceptance of uncertainty, which is inherent in the process of legal fact-finding, necessitates the conclusion that the legitimacy of legal outcomes cannot depend on substantive accuracy alone. On that basis, the significance of procedural legitimacy becomes self-evident.

I do not, however, misunderstand Haack’s point, nor unduly neglect its significance: of course, a proceduralist argument depends on the acceptability of substantive law, including the substance of the procedural

22. *Haack’s Reply*, *supra* note 2 at 46.

23. *Ibid* at 48.

24. [1994] 2 SCR 9.

25. See *Law’s Treatment of Science*, *supra* note 1 at 4-5.

26. *Haack’s Reply*, *supra* note 2 at 47.

laws. But this does not diminish the argument for the importance of maintaining procedural propriety to ensure legitimate adjudicative outcomes. Even when the substantive law is legitimate, an adjudicative decision can become *illegitimate* due to procedural compromise. In that sense, procedural propriety can be understood as a trump in adjudicative turf. My focus was on the legitimacy of adjudicative decisions, and particularly adjudicative fact-finding on the basis of a standard of proof that is less than certainty; my focus was not the legitimacy of substantive Canadian law. The superficial references to Chinese and Pakistani law were not relevant to me.<sup>27</sup> Nor were those references helpful in making the point that substantive law needs some justification for a proceduralist argument for the legitimacy of the entire legal system to be at its most robust. Considering the parameters of my project, such justification was not within my scope.

Since it was not necessary for me to delve into the legitimacy of substantive law, Haack was led to question whether I “could possibly be taking current Canadian evidentiary procedure to be ideal, incapable of improvement in any respect.”<sup>28</sup> The answer is no. My argument is that consistent adherence to existing legal procedure maintains the legitimacy of adjudicative outcomes *now*. Indeed these procedures can be improved. The Goudge Inquiry, which I endorse, suggests ways that they can be improved. But the improvements must be consistent, so that all litigants are subject to the same legal procedures. The improvements must not be based on an effort to better accommodate science either by allowing different procedures to be applied to scientific evidence, or by imposing science-based reasoning on legal questions. On this basis, I endorsed the Goudge Inquiry report for its consistency with procedural legitimacy: the recommendations provide judges with the tools to apply the same procedural rules that they apply to all expert evidence, properly and consistently, to scientific or otherwise technical expert evidence.

#### *Final comment*

*Edmond and Roach's Reply* and *Haack's Reply* have alerted me to those areas of my argument that required further attention. I am obliged by their replies, and I have been fortunate to have their helpful input. I remain, however, committed to the concept of procedural correctness, and advocating its significance in maintaining the overall legitimacy of the adjudicative system.

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27. *Ibid* at 47.

28. *Ibid* at 48.

