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TRANSLATING SCIENCE INTO FAMILY LAW:
AN OVERVIEW

Elizabeth Mertz*

INTRODUCTION

Lawyers have often harbored an understandable hope that science can provide answers to difficult legal questions, especially in an area like family law. So often the results in family law cases turn on messy evidence, judgment calls, and uneasy mixtures of fact and intuition. Furthermore, the consequences of legal decisions in family law cases can have a dramatic impact on the lives of children and parents. Judges and attorneys do not have the luxury that others have; they cannot throw up their hands and refuse to make a decision. They have to act, sometimes proceeding with a painful awareness that the best available knowledge may be inadequate and that they may be making a mistake. What a relief it is to be able to rely on science for answers about paternity claims. How reassuring it is in criminal cases, where the stakes are also very high, to draw on science for greater certainty about whether an accused murderer or rapist is guilty. When the translation between science and law is clear, it can be a boon to beleaguered legal professionals working on tough problems. And yet, there may be times when the invocation of science is misleading or unhelpful.

This ambitious Symposium explored the promise and the limitations of biology in illuminating legal questions.1 The papers presented at the Symposium covered topics ranging from the effects of family violence on children to whether biological evidence can be used to discredit same-sex marriage. By exploring the full range of perspectives presented at the Symposium, we can see why biology is both attractive and problematic as a source of solutions to legal dilemmas.

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This Article starts with an inquiry into the relationship between legal and scientific discourses. It then reviews the topics discussed at the Symposium, with particular attention paid to the articles appearing in this issue. It ends with an in-depth discussion of the topic of recovered memory that gives an on-the-ground example of the translation issues raised throughout the rest of this Article.

II. INTERDISCIPLINARY COMMUNICATION

The organizers of the Symposium called for "members of the legal and scientific communities to communicate and collaborate" on family law issues. I begin by asking what it means for scientists and lawyers to truly communicate on these issues. There is often an assumption of transparency, as if science and law spoke the same language. In this view, all lawyers have to do is take the results that emerge from scientific studies and apply them to legal problems. Law defines the problems, science provides the relevant information, and law solves the problems based on the scientific evidence. But it may be that science begins with different ideas about how to define the problems themselves, or with a different conception of the goals of obtaining knowledge in the first place. When this is the case, law may be absconding with "answers" that only remotely resemble the scientific findings from which they supposedly derive. An assumption of transparency may give lawyers a false sense of certainty, preventing them from seeking a deeper understanding of the scientific knowledge on which they rely. Lawyers are typically trained to approach the gathering of knowledge in an adversarial frame of mind; they often discard evidence that might damage their case, even if that evidence is valid. It follows that they may be tempted to dip into science only to locate findings that fit their preferred points of view, rather than reevaluating a point of view when the bulk of the science fails to support it.

Similarly, scientists may be naïve about the way legal procedure and doctrine mediate the determination of "facts" in legal settings. What counts as a legal fact can bear little relationship to the kinds of facts with which scientists deal. Legal facts emerge from the application of legal procedures and rules, which produce legal certainty (i.e., the issue was properly before the court, the rules of evidence were fol-

3. See Lee Epstein & Gary King, The Rules of Inference, 69 U. CHI. L. REV. 1, 9 (2002) ("An attorney who treats a client like a hypothesis would be disbarred; a Ph.D. who advocates a hypothesis like a client would be ignored.").
The jury may make a mistake, but unless what it decided was clearly erroneous, its decision will stand as a legal fact. This would make little sense under the rules of scientific proof, where it is necessary to examine a particular question a number of times and from a number of different angles, and to reject hypotheses that are disproved regardless of whether a previous scientific team came to a different conclusion. Scientists are also not typically trained in normative reasoning or policy analysis. They may therefore make their own assumption of transparency, moving from scientific findings to legal policy without stopping to think of the complexities that the adversarial approach brings to light. It is undoubtedly appealing to any researcher to think that the results of narrowly designed scientific studies on animals might have broad implications for human beings and their systems of justice. But much is involved in moving from the laboratory to real life, from animals to humans, and from individuals to a social system. An adequate translation of social science to law must look at the intervening steps just as systematically and carefully as it looks at the initial findings.

These are just a few examples of the translation difficulties facing lawyers and scientists. True communication requires that these problems be confronted head on rather than ignored. Fortunately, there is a growing awareness of these issues, and new efforts to bridge the divide are springing up in legal studies.  

III. FROM BIOLOGY TO LAW

We can trace a number of common questions and themes throughout the various topics in this Symposium. One involves the frequent observation that there are intervening effects of social context on biological results. Another is how best to move from scientific results to legal policies.

4. Within legal studies, the project that tackles these issues most directly is known as New Legal Realism. See Symposium, New Legal Realism Symposium: Is It Time for a New Legal Realism?, 2005 Wis. L. REV. 335; Symposium, New Legal Realism, 31 LAW & SOC. INQUIRY 795 (2006); New Legal Realism, The New Legal Realism Project, http://www.newlegalrealism.org (last visited May 28, 2007). Scholars involved in Empirical Legal Studies are also concerned with creating bridges between law and social science; they are less concerned, however, with systematic consideration of translation issues. And, on the other side, it is encouraging to find interest from scientists and social scientists—such as those who attended this conference—in building a genuinely interdisciplinary discussion. For a general discussion, see Jonathan Yovel & Elizabeth Mertz, The Role of Social Science in Legal Decisions, in The Blackwell Companion to Law and Society 410 (Austin Sarat ed., 2004).
A. Genetics, Behavior, and Law

The initial topic explored at the conference was the impact of genetics on behavior. The article by Professor Jelena Radulović and attorney Bratislav Stanković⁵ and the article by Professor Laura Baker⁶ discuss new research that demonstrates the impact that genes may have on behavior in both mice and humans. These articles provide a perfect opportunity to assess issues involved in moving from scientific knowledge to legal policy. Radulović and Stanković, for example, devote most of their fascinating discussion to a careful dissection of evidence from laboratory studies of mice. These studies show that genetic manipulation can produce changes in emotional behavior. But the authors also follow the conventions of their field in specifying the limitations of these studies. They note, for example, that although genetic predispositions can mute initial responses to stress, repeated stress can overcome these genes. Their measured conclusion is that “genetic effects on behavior cannot be averaged,” but must instead be analyzed systematically in terms of gender, population, and environment.⁷

Given this careful conclusion, it is somewhat startling to move to the concluding sections of their article, which paint in broad strokes the possible legal implications of their findings. For example, the authors view the question of “the degree to which our actions are caused by our genes” as a fundamental question for our system of justice.⁸ Yet their own analysis demonstrates that a combination of factors is at work and that intervening contextual influences may shift genetic influences. The leap from genetic predisposition in mice to genetic influences on human decisionmaking is a huge one, and I would urge that scientists employ the same high level of caution in entering the policy domain as they do in discussing their own findings. Similarly, the authors suddenly allude to a possible genetic predisposition for violence and rape, and suggest some sweeping legal implications to be drawn from genetics.⁹ But, as the authors themselves acknowledge, one cannot assume the applicability of data from mice “to human situations, where gene alterations are likely to consist of subtle sequence changes”¹⁰ and the potential environmental interventions are so com-

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⁷. Radulović & Stanković, supra note 5, at 832.
⁸. Id. at 834–35.
⁹. Id. at 834–36.
¹⁰. Id. at 830.
plex.\textsuperscript{11} It would seem advisable to limit speculation about applicability accordingly.

Baker's article takes us into the realm of human subjects, where studies of twins, families, and adoptees have indicated that there are genetic influences on personality, cognitive abilities, psychological disorders, and family relationships.\textsuperscript{12} Again, although Baker's primary emphasis is to persuade us of the importance of genetic influences, she follows scientific conventions in presenting a balanced assessment. For example, she comments that the existence of genetic influences on "behavior does not mean that environmental influences are unimportant."\textsuperscript{13} Indeed, there is a substantial part of psychology that cannot be accounted for by genes. Baker also points out that "associations between abusive parenting and a child's later antisocial behavior remained significant even after controlling for genetic differences in the children," so child abuse has a contextual effect on outcomes for children apart from genetics.\textsuperscript{14} Whatever genetic predisposition there might be in children, in other words, the high stress of child abuse has its own effect. Baker paints an intriguing and complex picture of the factors contributing to child abuse and its consequences. For example, a parent and child may have genetic predispositions that create a poor match; the parent will not be as effective with that particular child as with a sibling who has a different genetic makeup and thus a different personality. Children with some genetic profiles may have less resilience when abused; thus, the negative results they experience are at the same time triggered by environment (abuse) and conditioned by genetics (less resilience).

A number of important themes emerged from these two discussions of genetics. First, although both articles stress the key role of genetics, they also acknowledge the importance of environmental influences. This acknowledgement illustrates the dispassionate and balanced parsing of results that characterizes scientific writing. Second, the articles highlight the need for continued interdisciplinary communication about how to best translate scientific findings into the legal domain. For example, the fact that some behaviors may have genetic

\textsuperscript{11} Of course, we can still glean important information from these experimental studies, as this Article attests. And if there is concordant evidence from studies of humans, there is a still stronger case for applicability. But we all have a strong responsibility to take care when moving from a tentative scientific "is" (or, more accurately, "maybe is") to a declarative legal "ought"—especially given the history of legal misapplications of biological learning we have already experienced.

\textsuperscript{12} Baker, supra note 6.

\textsuperscript{13} Id. at 846.

\textsuperscript{14} Id. at 843–44.
components does not automatically translate into clear legal consequences. If someone is genetically predisposed to be withdrawn, for example, it would not relieve him of a contractual obligation that required him to communicate about a business transaction; nor would many people agree that a predisposition to anger should excuse someone for a violent action.\(^{15}\) It might be that awareness of these predispositions could be useful to therapists, to medical professionals, or to the individuals themselves, but only if there are nongenetic interventions that can compensate for genetic substrates. By implication, this would mean that those genetic substrates are not completely determinative but are capable of alteration through nongenetic means. Interestingly, Baker’s only real policy prescription is precisely that scientific information on genetic inputs be used “to develop effective programs of intervention and prevention of serious mental health and behavioral problems.”\(^{16}\) She cautiously adds that this prescription is useful only if environmental or contextual inputs are effective in overcoming genetic predispositions.\(^{17}\)

**B. Biology and Family Violence**

The next set of papers provides one kind of response to Baker's concerns. These papers document how family violence—a contextual factor—shapes biology.\(^{18}\) Neuroscientist Debra Niehoff's impressive article tracks the many levels on which violence affects brain biology.\(^{19}\) Combining the results of studies on humans and animals, she traces how humans adapt to their environments during the protracted period of human brain development. Over time, children raised in unsafe environments develop brains that are adapted to a violent world. The child's constant vigilance, which is accompanied by biological effects such as spiking cortisol levels, has an impact on the amygdala, the hippocampus, the prefrontal cortex, and the corpus collosom. These parts of the brain affect memory storage and retrieval, the regulation of stress responses, lateralization, and the processing of emo-

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15. Whether incarceration or rehabilitation is an appropriate response is a separate question, but I would think that scientific studies of the efficacy of particular rehabilitative interventions would be of most use in formulating policy on this issue.


17. This is an especially cautious conclusion given that both Baker and Radulović and Stanković have noted that environmental factors can intervene to overcome genetic predispositions; it is even more cautious given the existing literature that documents differential outcomes for genetically similar children depending upon the parenting they receive.

18. Of course, as Baker notes, genetic factors may contribute to the abuse as well. Baker, *supra* note 6, at 843. But these articles discuss clear contextual effects of abuse on biology.

tional information. Niehoff explains how abuse can affect learning "at the cellular level." Baby monkeys born to abusive mothers, if switched to nurturing mothers, can learn a healthy set of responses, while babies born to nurturing mothers, when switched to abusive mothers, are more likely to become abusive themselves.

Like Baker, Niehoff takes account of the effects of genetics, noting that differences in genetic predispositions can influence the degree of emotional injury caused by abuse. But the influence of genes on "conditions like depression or violence depends on the permissive or moderating effect of environmental circumstances that bring out the best or worst in the genotype." There is good news as well as bad news in Niehoff's account: she explains that our brains retain neural plasticity into adulthood, allowing them to readapt if people are placed in a safe situation and given new ways of understanding the world.

In her conclusion, Niehoff faces the complexities of translating her findings into policy. She acknowledges the "devil's bargain" made by the current child welfare system, under which it often remains impossible to provide abused children with real safety and a better environment. She also understands that "[t]he biological consequences of abuse do not obviate personal responsibility," again confronting the wrenching choices with which we are left in the wake of child abuse. Her recommendation of early intervention to protect children during formative years seems well supported by the research she has presented. Society could take more responsibility at an earlier stage, interrupting the cycles of violence that generate ongoing tragedy—as well as cost to the criminal justice system—and preventing the damage to children documented in her article.

Professor Gregory Moffatt and researcher Savannah Smith take us into a similar arena in their article on the effects of marital violence on children. Like Niehoff, they trace the many ways in which a child's developing brain can be adversely impacted by exposure to violence. This article also contains ample evidence of the role of environmental or contextual factors in shaping the very biological structure and chemistry of our brains. In this case, however, they are addressing what happens when children witness domestic violence. Moffatt and Smith describe the ways in which viewing conjugal violence can dam-

20. Id. at 868.
21. Id. at 868–70.
22. Id. at 873.
23. Id. at 877.
age children, from increasing their general stress levels to causing a plethora of emotional and behavioral disorders. In addition, conjugal violence can lead to maternal depression, which can interfere with attachment and thereby injure children emotionally.

Professor Eli Finkel and researcher Erica Slotter use attachment theory to examine triggers for intimate partner violence (IPV). In his presentation at the Symposium, Finkel distinguished between "crime" or "victim" studies, which found that IPV was rare and perpetuated mostly by men, and "family conflict" studies, which found that IPV was alarmingly common and perpetuated by men and women equally (although women were still more likely to be injured). He drew a useful distinction between the kinds of studies that produced these disparate results: one began with statistics on crime, hospitalizations from violence, etc., while the other began with nationally representative samples. He suggested that the difference in perspectives between these two types of studies resulted in part from the fact that they were tracking two distinct kinds of violence: "intimate terrorism" (characterized by frequent, escalating violence) versus "situational couple violence" (characterized by occasional violence that did not escalate). He went on to consider factors that might impel as opposed to inhibit perpetrators of domestic violence.

The Finkel and Slotter article that appears in this issue deals almost exclusively with one factor that may impel perpetrators of IPV: the quality of their attachment to their primary caregiver (often their mothers). Drawing on classic research by Bowlby, who studied the effects of differential nurturing on baby monkeys, the authors focus on the "anxious-ambivalent" style of attachment. Infants of mothers who were unreliably available developed styles of interaction in which they clung anxiously to caregivers, were angry and distressed during times of separation, and demonstrated ambivalent responses to their mothers when present (that is, they both clung and pushed away). Finkel and Slotter then summarize a number of recent studies that suggest an association between IPV and attachment anxiety. They stress that the phenomenon is gender-neutral (i.e., both women and men with attachment anxiety perpetuate IPV). The authors do not distinguish levels of violence, so we do not know if women are as

27. See Finkel & Slotter, supra note 25, at 898–901.
likely as men to engage in lethal or severely injurious violence (or the contextual circumstances of that kind of severe violence). In their conclusion, they note that there is an emerging consensus that current treatment programs for domestic violence are ineffective. They speculate that treatment that addresses attachment anxiety may be more helpful.

In a sense, the paper presented by Finkel at the Symposium provides a more useful context for legal professionals than does his article with Slotter. This is because the Symposium presentation paid more attention to differing kinds of violence, distinguishing between a type that more frequently elicits legal intervention and a type that is part of a nonescalating pattern of marital difficulty (which is a concern addressed more appropriately by therapists than by courts). For psychologists, who are understandably more intrigued with the etiology of psychological problems, it may be immaterial whether violence results in serious injury or even death. But to the legal system, it matters a great deal. When we examine the entirety of instances in which one partner loses restraint and touches the other in anger, it may well be that the distribution is gender-neutral. But the bulk of the domestic violence cases that lead to the death or serious injury of a partner are perpetrated by men against women. It would be important for any translation between psychology and law on this issue to differentiate between the cases that rise to a level that necessitates legal intervention and those that are more the province of marital therapists.

This is not to dismiss Finkel and Slotter's suggestion for a possible new treatment option in domestic violence cases. It would be wonderful if more effective approaches could be developed; the legal system needs to address serious violence perpetuated by women when it occurs. But there is a big difference between a therapist's office and the courtroom to which desperate women come pleading, quite literally, for their lives. Indeed, the classification of violence as IPV does not permit us to distinguish between a person who kills his spouse to prevent her from escaping an abusive marriage, and someone who kills her abusive spouse to defend herself from violence. When these kinds of factors are considered, we see some clear gendered differences: men are more likely to use violence to control partners, while women are more likely to use violence to defend against or respond to as-

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28. See U.S. Dep't of Justice, Bureau of Justice Statistics, Intimate Partner Violence in the U.S., Victim Characteristics, http://www.ojp.usdoj.gov/bjs/intimate/victims.htm (last visited May 28, 2007). Interestingly, there are many possible ways of explaining the gendered distribution of lethal violence. Everything from hormones to patriarchy has been proposed; another possible field for exploration is differences in gendered socialization practices.
saults. This is a perfect place for further efforts at genuine interdisciplinary translation, in which psychologists and lawyers involved in addressing similar problems could compare notes about the ways their experiences might differ.

Family therapist Janis Clark Johnston deals with the issue of child sexual abuse, another arena in which issues of violence and gender arise. As Johnston notes, “Most abusers are male; women are perpetrators in only 14% of cases involving boys and 6% of cases involving girls.” Johnston’s article demonstrates how it is possible to focus on the overall phenomenon, which crosses gender lines, yet also acknowledge gendered dimensions of the problem. Like other authors at the Symposium, Johnston examines the issue of attachment. She describes the way in which basic attachment and “belonging needs are compromised in confusing and complicated ways” when a child is subjected to incest. Interestingly, Johnston lends support to Finkel and Slotter’s hypothesis about the benefits of a therapeutic focus on attachment disorders in cases of family violence. She describes the way this approach was helpful in treating an incest perpetrator. In an intriguing twist on Finkel and Slotter’s conclusion, Johnston speculates about the possible differences between men and women in our culture in terms of attachment: “Since more sexual perpetrators are male, we might question whether men are more at risk for being unable to address their needs to have positive and healthy attachments . . . . Our culture may focus too heavily on the benefits of autonomy for men . . . .” Like many of the Symposium participants, Johnston ends with a plea for better and earlier intervention, as well as education, to help prevent violence.

C. Juvenile Justice

At the Symposium, a panel was devoted to the issue of juvenile justice. Professors Jane Rutherford and C. Antoinette Clarke both suggested that new biological findings might shed light on juvenile justice policy. In counterpoint, Professor Frank Zimring cautioned conference participants against a reliance on biology in this volatile arena.

29. L. Kevin Hamberger, Men’s and Women’s Use of Intimate Partner Violence in Clinical Samples: Toward a Gender-Sensitive Analysis, 20 VIOLENCE & VICTIMS 131, 132, 144 (2005) (noting that women are disproportionately victimized, more afraid of partner violence than are men, and more likely to be severely injured).
31. Id. at 910.
32. Id.
33. Id. at 924.
Clarke’s article makes the case that the law should incorporate new findings on adolescent biological development. Clarke provides perhaps the most direct discussion of translation issues among the papers in this Symposium:

Good science often moves forward by leaving certain questions open, by entertaining a number of possible hypotheses, and by recognizing the contingent nature of scientific truth. In contrast, law aims to define and close questions by providing yes or no answers based on limited information. The cultivated uncertainty that is a scientific virtue is anathema to legal decisionmakers. This is a very useful reminder of the need to pay attention to the translation process itself when performing interdisciplinary work. We must understand the goals and norms of each field, and how they might fit together or conflict with each other.

Clarke goes on to review studies of intellectual and neurobiological development, highlighting consistent findings that reveal a slow maturation process for humans during adolescence. Some forms of moral and deductive reasoning, capacities for impulse control, and comprehension of long-term consequences are slow to develop. In light of these biologically based inabilities, some scholars have proposed that the law recognize an intermediary phase between childhood and adulthood. The law’s insistence on binary categories in this instance, they argue, is a poor translation of the complex process of human maturation. Clarke, however, proceeds to develop a further translation of the implications of these scientific findings, one that takes more detailed account of the legal realities facing juveniles in today’s system. She argues for three levels of distinctions among youths of different ages, and makes a strong case against housing juveniles of any age with adult offenders. Even those who are not moved by arguments based on humane treatment or justice might want to consider what a foolish policy choice this is; when the juveniles in question have not committed a violent crime, the exposure to violent adults in prison will create a new problem for society as well as for the juveniles involved. Many of Clarke’s recommendations go to the issue of how best to rehabilitate young people at a developmental stage when their capacities are still in flux, and it is still possible to positively influence their growing minds. Like many of the other participants in this Sym-

34. C. Antoinette Clarke, Bridging the Gap: An Interdisciplinary Approach to Juvenile Justice Policy, 56 DePaul L. Rev. 927 (2007).
35. Id. at 928 (citation omitted).
36. Id. at 935 n.43.
37. Id. at 939–41, 946.
posium, Clarke argues that the best solution is early intervention to create more positive environments for at-risk juveniles.

Rutherford also makes the case for higher levels of social responsibility in changing the parts of our culture and legal system that encourage rather than discourage the development of violent tendencies in young people. As she notes, there is strong evidence that the intervening effects of environment during childhood can make a large difference in an adolescent's subsequent choice to engage in criminal behavior. By contrast, the use of purely biological markers is fraught with many potential dangers, given that they cannot predict individual behavioral outcomes.

Here Rutherford makes a point that resonates with comments made by Zimring at the Symposium. Zimring questioned the use of biological markers for establishing penal maturity. He argued that while biological development may provide the necessary conditions for maturity, this does not mean that biological maturity is sufficient for making legal judgments about overall maturity. For example, Zimring pointed out that we might want to permit very young girls to choose to have an abortion, while nevertheless deciding that eighteen-year-olds are too young for lethal injections. In a sense, he does not want to hang young people's legal rights on the potentially slender reed of the latest scientific findings. Thus, he would permit young girls to make their own decisions about abortion not because they are mature, but because it is their legal right. In taking this perspective, he echoes an early critic of the use of social science evidence in legal decisions. In a well-known article, Professor Edmond Cahn raised concerns about the degree to which the Supreme Court relied on social science in its famed Brown v. Board of Education decision. Cahn protested that he "would not have the constitutional rights of [African-Americans]—or of other Americans—rest on any such flimsy foundation as some of the scientific demonstrations in these records," nor "have our fundamental rights rise, fall, or change along with the latest fashions of psychological literature." He then posed this problem: "Today the social psychologists . . . are liberal and egalitarian in basic approach. Suppose, a generation hence, some of their successors were to . . .

41. Id. at 157-58, 167.
present us with a collection of racist notions and label them 'science.' What then would be the state of our constitutional rights?”

Cahn and Zimring raise a very difficult, interesting question about legal strategy and the fundamental foundations of legal claims. On one hand, it is possible that good science and social science can buttress claims that might not otherwise be seen objectively by the courts. On the other hand, science and social science are embedded in social institutions and are therefore not immune to changing political climates. One need only examine the history of eugenics in the United States and elsewhere to understand why Cahn is worried.

Finally, Zimring concluded by echoing the idea that the best approach to these problems is to focus on prevention—a conclusion widely shared by participants in the Symposium. Fortunately, in this instance, the most humane approach is also the most economically efficient one. By working to create better environments for young children—particularly when they begin to show signs of distress—we can avoid the ongoing effects of increased violence both for the children and their victims, as well as the cost to society as a whole. Realistically, however, it is difficult to advocate this long-term view in today's political environment. Zimring holds out hope, nonetheless, that an argument based on cost savings might succeed in redirecting legal policy and public attention to focus on positive primary socialization. Rutherford makes a similar point and adds a legal argument based on an innovative theory of equal protection. She also proposes a set of legislative and policy initiatives aimed at protecting children, with a particular emphasis on intervention in cases of abuse. As we have seen, this particular emphasis is well supported by the scientific research on the effects of child abuse.

D. Same-Sex Marriage

We need only turn to the next topic to observe the ways in which politics can affect arguments purportedly based on science. At the Symposium, three speakers addressed the legal and scientific issues involved in same-sex relationships. Professor J. Michael Bailey reviewed current scientific evidence regarding the contributions of biology to male and female arousal patterns. Professor Lynn Wardle argued against legal recognition for same-sex marriage, while Profes-

42. Id. at 167.
43. Rutherford, supra note 38, at 987–92.
sor Mary Becker argued that lesbian relationships should be promoted as a particularly advantageous form of union for women.

Bailey, like Radulović and Stanković, reported differences between the sexes in the degree to which biology affects behavior. In particular, he discussed findings indicating that women’s sexual arousal patterns are not as differentiated by sexual preference as those of men. Although he was defending somewhat controversial conclusions, Bailey’s presentation was characterized at many points by the caution that one expects from scientists, pausing to take note of exceptions and partial findings (for example, observing that research on genetics shows some heritability of sexual preference). Bailey’s care in presenting scientific findings was echoed in his approach to normative recommendations: he limited himself to advocating increased funding for research and did not make unsupported leaps from biology to legal policy.

This style of presentation is in marked contrast to that of Wardle, whose article reads more like a legal brief than a measured assessment of scientific evidence. In this sense, one could say that although Wardle draws on biology to bolster his legal argument, his approach is not interdisciplinary at its core. Contrary evidence is ignored or dismissed; instead, the article is structured around a one-sided normative argument. Scientific literature is mined for supporting tidbits rather than systematically reviewed. Indeed, Wardle acknowledges skepticism regarding the utility of social science for law. But where Cahn and Zimring were concerned that use of social science might undermine individual rights, particularly when such use is politicized, Wardle is concerned that invocation of social science might support recognition of rights that he feels should be denied. Where Cahn was worried that prejudice might masquerade as science, Wardle seems concerned that science might undermine old social prejudices. Interestingly, Wardle’s skepticism is highly selective, for where biological evidence aids his case, he readily draws upon it.

The fundamental argument in Wardle’s article seems to be that because homosexual sex is associated with the spread of sexually transmitted diseases (STDs), particularly AIDS, homosexual unions should be discouraged or disfavored. Of course, as Wardle acknowledges, heterosexual sex spreads STDs as well. For Wardle, however, the spread of STDs in heterosexual unions seems to be acceptable. Apart from prejudice, it is not clear why one should target types of unions as

opposed to kinds of behaviors in discouraging the spread of STDs. The heterosexual married man who has unprotected sex with female prostitutes has more in common with a gay man who behaves similarly with male prostitutes than he does with a heterosexual man who remains faithful to his partner. But Wardle not only exempts reckless heterosexuals from opprobrium, he even attempts to blame the spread of STDs among heterosexuals on homosexual sex. It is interesting to watch Wardle’s focus shift between AIDS and other STDs depending on what best supports the case he is bent on making. For example, one could hardly argue that the general spread of STDs among heterosexuals has much connection with gay sex; concern about the proliferation of STDs other than AIDS existed among heterosexuals long before the AIDS epidemic. Married women traditionally had much more concern about their husbands’ heterosexual infidelities (sometimes with prostitutes) than about a potential homosexual encounter. This concern, of course, has not vanished today; one could argue that it has expanded, helped along by an increase in infidelity among wives.46

Clearly, Wardle’s strongest argument that STDs originating in the homosexual population have impacted the heterosexual population is found in his discussion of AIDS. But he runs into a problem when he attempts to discredit lesbian sex. As Mary Becker pointed out at the conference, lesbians have lower transmission rates of AIDS than heterosexual couples; so if AIDS transmission is the key concern, lesbian coupling should be the most highly preferred form of union.47 But it seems clear that Wardle is more committed to attacking same-sex coupling than to carefully assessing the issues. Thus he shifts focus to a number of other STDs (none of which are lethal) in his attempt to cast aspersions on lesbian sex.

This kind of inconsistency is apparent throughout Wardle’s article. For example, as AIDS transmission becomes more common in heterosexual couplings—particularly at a global level—one wonders whether Wardle would apply his own criteria and advocate that heter-

47. Mary Becker, Address at the DePaul University College of Law Sixteenth Annual Law Review Symposium: Ties That Bind: Family Relationships, Biology, and the Law (Mar. 3, 2006). The CDC has had difficulty confirming even one case in which HIV was transmitted through lesbian sex. HIV/AIDS Among Women Who Have Sex with Women, CDC HIV/AIDS FACT SHEET (Cts. for Disease Control & Prevention, Atlanta, Ga.), June 2006, available at http://www.cdc.gov/hiv/topics/women/resources/factsheets/pdf/wws.pdf. Even if there have been cases of HIV transmission among lesbians, the numbers are clearly quite low. Wardle characteristically chooses to ignore the bulk of the scientific evidence demonstrating that lesbian sex is the safest form of sexual interaction where dangerous STDs are concerned.
osexual marriage be outlawed. If our measure of the acceptability of certain forms of union rests on the percentage of disease transmission found in that form of pairing, Wardle should be recommending the end of heterosexual marriage in a number of countries across the globe today. It seems clear that he would not, and that a prior commitment to a preference for heterosexual unions drives his argument.

Still more disturbing is his attempt to use illness as a reason to deny individuals rights, as he invokes images of disease to fan prejudice in a fashion that is unfortunately all too similar to some of history's darkest hours. Modern science has hopefully shifted most of us out of that old shadow, moving us to understand illness in clinical, rather than fear-mongering, frames. Today, one hopes that most professionals would bring up the issue of disease only with an eye to formulating positive and helpful solutions. It seems clear that Wardle's vision is unfortunately clouded by prejudice, a cloud that remains untouched by evidence or reason. For example, one wonders if Wardle would argue that heterosexuals who carry genetic diseases, or whose families have histories of mental illness, should be barred from marrying. Or is it possible that in an environment less upsetting to his personal morals, he is capable of seeing a different picture at the intersection of biology and law?

The skewing of his argument is still more apparent in Wardle's discussion of gay and lesbian parenting, where his prior prejudices seem to blind him to available evidence. For example, as noted by Johnston, the most common pattern of child molestation involves heterosexual attacks—adult male relatives sexually abusing young females. Adult women are far less likely than adult men to be perpetrators of sexual abuse. To follow his own strictures here, Wardle would have to consider this literature. I would view this as a basic requirement in any balanced account of this particular issue.

There has also been a consensus emerging in recent years that levels of parental conflict are crucial in shaping children's development. See Paul R. Amato, Children of Divorce in the 1990s: An Update of the Amato and Keith (1991) Meta-analysis, 15 J. Fam. Psychol. 355 (2001). Again, if Wardle were truly interested in the welfare of children, as opposed to attacking gays and lesbians, he might focus more on policies designed to lower parental conflict. To help children, he would have to focus more on heterosexual homes, because they constitute the vast majority of the homes in which children are raised. If one were truly concerned about important social problems, one would have to shift the focus away from the punishment of particular groups of people and toward the problems themselves.

48. There are numerous studies of children raised in lesbian and gay families. In general, the results of these studies do not suggest the kinds of dire outcomes asserted by Wardle. See, e.g., Bridget Fitzgerald, Children of Lesbian and Gay Parents: A Review of the Literature, 29 Marriage & Fam. Rev. 57 (1999); Charlotte J. Patterson, Children of Lesbian and Gay Parents, 15 CURRENT DIRECTIONS PSYCHOL. SCI. 241 (2006). Wardle could express disagreement with how some of these studies were conducted or question particular findings; it is quite telling that he does not even consider this literature. I would view this as a basic requirement in any balanced account of this particular issue.
conclude that children are safest in homes where there are no adult males.49 This would favor either single mothers or lesbian couples as the ideal parents. Conversely, under Wardle's argument, we should discourage the many heterosexual women who were molested as children from being parents because he expresses concern about intergenerational transmission of abuse. But again, it seems clear that Wardle's approach is rooted more in a priori normative commitments and prejudices than in logic or science.

Becker also spoke during the Symposium panel devoted to same-sex marriage. Like Wardle, Becker made a largely normative argument but was quite clear about what she was doing. She did not hide behind distorted presentations of science, but instead presented a straightforward argument advocating a normative point of view. In support of this position, she pointed out that lesbian relationships are less likely to be characterized by violence than are heterosexual relationships. She also noted that these relationships tend to be more egalitarian and less exploitive of women. Furthermore, she argued that were more women to choose lesbian relationships, there would be fewer women available for heterosexual partnering. This shortage would, she opined, give heterosexual women more bargaining power with men, opening the possibility for better, more respectful heterosexual unions. In approaching women's sexual orientation as a matter

49. This is particularly the case if we base our argument on relative percentages of harm, as Wardle does when comparing percentages of AIDS transmission between gay and heterosexual populations. Again, perhaps in a setting where heterosexual men would suffer unfairly from such an approach, Wardle might be able to see the difficulties. But this assumes that he is willing to question his predispositions at all. One key difference between science and law is the degree of pressure that the two approaches place on professionals to reexamine their initial assumptions and emotions. My own field, anthropology, is perhaps the most stringent in this regard, as it requires its practitioners to set aside the fundamental world views with which they were raised, at least when they are collecting data on beliefs in other cultures. I cannot adequately capture the religion of another society if I am unwilling to put my own religious beliefs aside for a moment in an effort to step into the shoes of someone with a very different perspective. But all social sciences and sciences, to one extent or another, demand that we submit to canons of consistency and objectivity. We do not have to go very far back in history to remember times when African-Americans, Irish-Americans, or others were viewed as biologically different than other Americans—as closer to primates or as not fully human. The correction to this mistaken view was achieved through a number of means, but one contribution was from scientists who were able to use their methodologies to rise above assumptions deeply imbedded in their own cultures. It can be difficult to achieve this; it is so tempting, especially from an elite position in society, to assume that superior status comes not from arbitrary cultural categorization, but from innate superiority. As a white, heterosexual, economically privileged woman, it might be reassuring to me to think that my way of doing things is the best. I could then go out and collect information designed to support this point of view. But this would be advocacy, not science. The methods of science can also help us to supersede the limits placed on our vision by our own circumstances. The cost is that we have to be willing to reevaluate comfortable assumptions; the benefit is higher accuracy and a greater freedom from parochial prejudices.
of choice, Becker echoed Bailey's earlier comments, indicating the possibility that women are less genetically programmed for sexual preference than men. She suggested that it is possible to fall in love with a person for reasons other than his or her sex, and to feel a relative indifference regarding the shape of a person's body because one is focused on other aspects of who that person is as a human being.

These papers highlight the fact that science does not exist in a vacuum. How we use the findings of science can be heavily influenced by politics, emotional responses, personal beliefs, and prejudices. While the internal norms of science offer some counterbalancing, this is not true of the law. Lawyers are trained in advocacy. Thus, it is important, in entering interdisciplinary discussions, to take great care in moving between the two kinds of approaches. The greatest gift that science has to offer law is to remind legal professionals to be more balanced, to consider contrary evidence, and to remain open to revising presuppositions.

IV. The Example of Recovered Memory: Science, Law, and Politics

Several papers at the Symposium touched on the issue of memory and abuse; this Article has already discussed those by Niehoff, Moffatt and Smith, and Johnston. In addition, Ken Paller, Director of the Cognitive Neuroscience Program at the Feinberg School of Medicine at Northwestern University, presented scientific studies focusing on the formation of false memories, while my own paper examined how the legal system might best translate science that documents both accurate recovered memory and inaccurate recall.

As we learned from Niehoff, Moffatt and Smith, and to a certain extent Johnston, there is ample scientific evidence proving that exposure to abuse can affect the portions of the brain responsible for memory. In addition, Moffatt and Smith note that during maturation, "the brain is trained to decide not only what memories mean, but also which affective response is appropriate for those memories."50 This means that adults subjected to abuse as children sometimes fail to remember much about what happened to them. Studies of traumatic memory using multiple modalities have documented that these trauma survivors can sometimes experience a sudden return of accurate memories regarding the abuse they suffered.51

50. Moffatt & Smith, supra note 24, at 886.
51. Judith Lewis Herman & Emily Schatzow, Recovery and Verification of Memories of Childhood Sexual Trauma, 4 PSYCHOANALYTIC PSYCHOL. 1 (1987); Cathy Spatz Widom & Robin L. Shepard, Accuracy of Adult Recollections of Childhood Victimization: Part 1. Childhood Physi-
On the other hand, we also know that reported memories are not always accurate.\textsuperscript{52} This is true whether the "memories" were experienced as having been continuously present ("I always remembered this") or as having been forgotten and then recovered. When the reported memories involve child sexual abuse by a close relative, this creates a painful dilemma: we risk either believing something horrible about an innocent parent or ignoring (and re-traumatizing) someone who has suffered terrible pain and betrayal. It is no wonder that there is sharp debate in this area, or that some have sought overly simplistic bright-line answers, such as "all delayed memories are false" or "all reported memories are true." It is another fertile ground for exploring the promise and perils of drawing on science to solve legal problems.

During the panel on "Sexual Abuse and Children," Paller discussed scientific studies of distortions in memory.\textsuperscript{53} In a fascinating overview of the way memory functions, he isolated a number of points at which error can be introduced into the storage of memory. Paller explained the process of recollection, in which we remember a piece of information as well as aspects of the context in which we acquired that information. He distinguished this from familiarity, in which we recall information without its original context or source. An example of familiarity is the "butcher on the bus" phenomenon, where one might see a face that seems familiar (the butcher) but not be sure who the person is (because he is on a bus rather than at the butcher's shop, where one would usually see him). One form of mistaken remembering is source memory error, when someone attributes information acquired in one setting to a different setting.

Although Paller's presentation focused exclusively on sources of memory error, he exhibited the scientist's customary caution in drawing conclusions from heavily constrained experimental results. He warned his audience against thinking that one could use brain scans to distinguish accurate from mistaken memories, and he also noted the limitations of experiments using word lists in tracking the memory issues involved in recalling something like sexual abuse.\textsuperscript{54} While Paller

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noted that the possibility of mistaken memory makes decisions in cases of recovered memory difficult, he did not take a position on whether this should rule out reliance on such memories in legal settings, acknowledging instead that this is a very difficult question. His own studies show that inaccurate recall can also be problematic in cases of continuous memory; thus many of the same problems exist when we permit any kind of retrospective testimony in court. Paller's commitment in this talk was clearly to the scientific question of how memory works, rather than to ideologically motivated advocacy on one side or the other of the "memory wars." This can also be seen in the fact that he is willing to explore the mechanisms that create accurate recall, as well as the ones that create inaccurate remembering.55

There are, unfortunately, both accurate and inaccurate memories of abuse. As in every other arena, we have to sort carefully through the evidence in each case to try to ascertain what happened. We do not throw out "murder" as a category because sometimes people are falsely accused of murder. At the same time, our awareness of the existence of false convictions should make us cautious, reminding us to exercise critical judgment in assessing each situation.

Why, then, is there more controversy over this problem when it involves memories of child sexual abuse than in other sorts of cases? Scholars have pointed to many reasons for the particular kinds of responses we find in the arena of child sexual abuse: the social, cultural, and historical contexts surrounding our conceptions of the family; the social construction of sexuality and closely related problems of gendered relationships and differential power; biological factors; psychological defenses; and a general aversion to dealing with traumatic material.56 Media coverage of high profile cases, with its characteristic aversion to nuance or complexity, further oversimplifies the problem.

Cognitive psychology could also explain why so many people seem to prefer selecting one side of an apparent opposition, rather than holding onto two ideas that are in tension with one another. We can trace the misleading pendulum swing between different sides of key questions through past decades, both in public opinion and even within the scientific community. It seems difficult to keep in mind

that there are both accurate and inaccurate memories of abuse, or that people are shaped by both nature and nurture. There are dangers of false positives, but there are also dangers of false negatives; it is often more comfortable to choose a misleading certainty on these matters than to face the pain of uncertainty in areas where correct answers matter so much.57

These are general background factors, present across various periods of time, that work against a balanced treatment of these issues. But we can also trace a marked shift in public and legal attitudes toward recovered memory in recent decades. This shift resulted from a phenomenally successful campaign by an organized lobbying group comprised of parents who had been accused by their adult children of prior abuse—an advocacy group that made the wise strategic decision to use a name that evoked scientific rather than political associations (the False Memory Syndrome Foundation). By a coincidence, this group’s campaign to shift public opinion and legal results began just as the media’s coverage of accurate allegations had peaked. True allegations were therefore no longer “news,” whereas false accusations were. This about-face was aided by the inevitable discovery that some of the cases that had been unquestioningly accepted as true by the media looked pretty shaky. This provides another example of how political pressure and social factors can affect public and legal professionals’ perceptions of science.

The legal system could benefit on both sides if it would learn from the habitual balancing and caution of the scientific approach, rather than cherry picking scientific findings to suit legal ends. The tragedy of false convictions in other kinds of cases has been the subject of a great deal of publicity in recent years, and undoubtedly the juries in those cases would have benefited from more caution, which might have been better attained had they been well versed in the science regarding the perils of eyewitness identification and mistaken recall. This is obviously a problem regardless of the kind of crime or kind of memory involved. There are pressures from organized groups on all sides and from shifts in current social and political climates, often partially fueled by the media. These pressures do not only affect policy decisions but also the way scientific evidence is assessed.

We can see similar political pressures at work in other kinds of abuse cases. Many courts remain suspicious of child sexual abuse claims, even when claims are contemporaneous rather than retrospec-

tive. There is increasing documentation of cases in which children who are actually being abused are not believed in court. This can lead to the tragic result that courts participate in handing children over to their abusers—a risk to which the current infatuation with the so-called parental alienation syndrome seems to be contributing. Similarly, there are cases in which courts have been unable or unwilling to consider the sizable scientific evidence that now exists regarding the possibility of accurate recall by adults who suffered abuse as children (sometimes, not always, after periods during which they apparently did not recall that abuse). It seems that judges are not unaffected by shifts in public opinion, media coverage, or political climate.

On the other hand, there is growing concern in the criminal justice system about false convictions. Political pressure can silence the voices of victims, and it can also push the legal system into sending innocent people to jail. In custody cases, however, we are dealing with the lower, civil law standard of proof. False imprisonment is not at issue. This kind of difference is one way in which a translation into legal settings departs from scientific norms. Scientists studying memory focus on the mechanisms involved; it does not matter whether our assessment of memory accuracy will result in imprisonment, a change in custody, or a failure to save a child who is being repeatedly molested. The translation of these scientific findings to legal settings should be treated differently depending on the stakes involved.

V. Conclusion

Clearly, the road to good legal translations of science is very challenging. There are many issues to consider in moving from scientific findings to legal policy. I strongly urge that scholars on both sides attend to the very different contexts involved, thinking not only about obvious results (whether legal or scientific) but also about subtle differences in epistemologies, disciplinary norms, and political agendas.

We are in many ways still beginning to understand how best to communicate and develop fruitful interdisciplinary discourse. As law


60. See supra note 51 and accompanying text.
professors gain a more systematic understanding of the issues involved, we can hope that they will incorporate what they learn into their teaching. This is not as unlikely as one might think; there are quite a few efforts underway now to reform legal education, at the same time as there is a move in the legal academy to reexamine the possible contributions of empirical research to law.\footnote{61} When I teach family law at the University of Wisconsin, I incorporate some instruction on how to decipher current social science studies of divorce and custody. I ask students to refrain from “hit-and-run” tactics in reviewing the relevant literature, selecting a study here or there that fits the conclusion they want to reach. We talk about how to look for more robust findings, supported by multiple studies using differing methodologies; we also ask what limitations different methods put on the kinds of conclusions that can be drawn. This allows them to look at studies of children’s responses to divorce or custody arrangements with new eyes. Initially skeptical, the students later tell me that they have found this training surprisingly useful in helping them to assess the myriad sources of information with which they will have to deal if they want to be good family lawyers. They are not learning to cherry pick the literature; they are learning to translate. This approach demands more of them. But taking the more challenging road may, in the end, allow lawyers to make the best possible use of social science.
