

## Law's Misguided Love Affair with Science

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"[Our] aim . . . is to encourage the application of scientific methods to the study of the legal system. As biology is to living organisms, astronomy to the stars, or economics to the price system, so should legal studies be to the legal system . . ."<sup>1</sup>

The allure of science has always captivated members of the legal profession. Its siren song has followed us throughout much of American legal history. Science offers a tune of perfection, of elegance, of solid dependability, and the promise of endowing law and legal actors with the respect and deference from society that we crave. Most importantly, we look to science to rescue us from the experience of uncertainty and the discomfort of difficult legal decisions.

The notion of what constitutes science and what it would take to make law more scientific varies across time. What does not vary is our constant return to the well. We are constantly seduced into believing that some new science will provide answers to law's dilemmas, and we are constantly disappointed.

In modern law, one can see many examples in which courts and scholars reach for science when faced with uncomfortable legal dilemmas.<sup>2</sup> We internalize science by borrowing rules of

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1. Richard A. Posner, Afterword, 1 J. LEGAL STUD. 437, 437 (1972).

2. See ROBIN FELDMAN, THE ROLE OF SCIENCE IN LAW (forthcoming Feb. 2009). For other perspectives on the interrelation of law and science, see DAVID L. FAIGMAN, LEGAL ALCHEMY: THE USE AND MISUSE OF SCIENCE IN THE LAW (1999); Ronald Dworkin, *Social Sciences and Constitutional Rights—the Consequences of Uncertainty*, 6 J.L. & EDUC. 3 (1977); Steven Goldberg, *The Reluctant Embrace: Law and Science in America*, 75 GEO. L.J. 1341

science to create legal rules or we externalize our problems by giving scientists and other experts the power to make legal decisions. Our deference to these pillars of neutral rationality is supposed to bring clarity, certainty, and a resolution that all can respect. The strategy continually fails, however, leaving as much chaos, confusion, and disagreement as before.

Although the strategy fails, it is exquisitely revealing. It reflects a persistent image that law is weak and ineffective, a pale shadow in its own domain of what the sciences can project

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(1987); Dean M. Hashimoto, *Science as Mythology in Constitutional Law*, 76 OR. L. REV. 111 (1997); Oliver Wendell Holmes, *Law in Science and Science in Law*, 12 HARV. L. REV. 443 (1899); Richard Lempert, "Between Cup and Lip": *Social Science Influences on Law and Policy*, 10 LAW & POL'Y 167 (1988); Karl N. Llewellyn, *The Theory of Legal "Science,"* 20 N.C. L. REV. 1 (1941); Howard T. Markey, *Jurisprudence or "Juriscience"?*, 25 WM. & MARY L. REV. 525 (1984); Roscoe Pound, *Law and the Science of Law in Recent Theories*, 43 YALE. L.J. 525 (1934); J. Alexander Tanford, *The Limits of a Scientific Jurisprudence: The Supreme Court and Psychology*, 66 IND. L.J. 137 (1990); Charles Robert Tremper, *Sanguinity and Disillusionment Where Law Meets Social Science*, 11 LAW & HUM. BEHAV. 267 (1987); John Veilleux, Note, *The Scientific Model in Law*, 75 GEO. L.J. 1967 (1987). For perspectives on American legal theories in general, see NEIL DUXBURY, PATTERNS OF AMERICAN JURISPRUDENCE (1995); MARK KELMAN, A GUIDE TO CRITICAL LEGAL STUDIES (1987); GARY MINDA, POSTMODERN LEGAL MOVEMENTS: LAW AND JURISPRUDENCE AT CENTURY'S END (1995); JOHN HENRY SCHLEGEL, AMERICAN LEGAL REALISM AND EMPIRICAL SOCIAL SCIENCE (1995); ANTHONY J. SEBOK, LEGAL POSITIVISM IN AMERICAN JURISPRUDENCE (1998); Guido Calabresi, *An Introduction to Legal Thought: Four Approaches to Law and to the Allocation of Body Parts*, 55 STAN. L. REV. 2113 (2003); Ronald M. Dworkin, *The Model of Rules*, 35 U. CHI. L. REV. 14 (1967); Thomas C. Grey, *Langdell's Orthodoxy*, 45 U. PITT. L. REV. 1 (1983); Herbert Hovenkamp, *Positivism in Law & Economics*, 78 CAL. L. REV. 815 (1990); Avery Wiener Katz, *Positivism and the Separation of Law and Economics*, 94 MICH. L. REV. 2229 (1996); Arthur Allen Leff, *Law and*, 87 YALE L.J. 989 (1978); Martha C. Nussbaum, *The Use and Abuse of Philosophy in Legal Education*, 45 STAN. L. REV. 1627 (1993); Richard A. Posner, *Legal Scholarship Today*, 45 STAN. L. REV. 1647 (1993); Edward L. Rubin, *Law and the Methodology of Law*, 1997 WIS. L. REV. 521 (1997); Austin Sarat & Jonathan Simon, *Beyond Legal Realism?: Cultural Analysis, Cultural Studies, and the Situation of Legal Scholarship*, 13 YALE J.L. & HUMAN. 3 (2001); Howard Schweber, "Langdell, We Hardly Knew Ye," 17 LAW & HIST. REV. 145 (1999); see also, Edgar S. Cahn, *An Anthropologist Examines the Lawyer Tribe*, 17 YALE J.L. & HUMAN. 291 (2005); Daniel R. Ernst, *The Lost Law Professor*, 21 LAW & SOC. INQUIRY 967 (1996); Brian Bix, *Positively Positivism*, 85 VA. L. REV. 889 (1999) (reviewing ANTHONY J. SEBOK, LEGAL POSITIVISM IN AMERICAN JURISPRUDENCE (1998)); Thomas C. Grey, *Modern American Legal Thought*, 106 YALE L.J. 493 (1996) (reviewing NEIL DUXBURY, PATTERNS OF AMERICAN JURISPRUDENCE (1995)); Christopher L. Sagers, Book Note, 95 MICH. L. REV. 1927 (1997) (reviewing GARY MINDA, POSTMODERN LEGAL MOVEMENTS: LAW AND JURISPRUDENCE AT CENTURY'S END (1995)).

in theirs.

What is most striking about this process is that we rediscover it, generation after generation, in field after field of law. Law's fascination with science reaches back hundreds of years into American legal history. Throughout this history, the pattern of behavior reflects our doubts about whether law is capable of resolving difficult issues and our eternal hope that science can do it better.

The notion of what constitutes science and what it would mean to make law more scientific varies across time and among scholars.<sup>3</sup> What does not vary is our constant return to the well. We continually expect science to rescue us from the discomfort and uncertainties of law, and we are constantly disappointed.

This essay describes episodes in law's misguided love affair with science across the last two hundred years. Illuminating the tantalizing traps that we repeatedly fall into may help us avoid these paths in the future.

## I. LAW AS A SCIENCE

Looking back at the first half of the nineteenth century, many American legal scholars advocated approaching law as a science.<sup>4</sup> To some, the notion meant no more than conceptualizing law as some form of an organized system, rather than a loose collection of precedents.<sup>5</sup> To others, it meant approaching "law . . . as an outgrowth of the moral sciences."<sup>6</sup> To still others, it meant that law was analogous to natural science.<sup>7</sup> The last group, in particular, argued that the study of law should follow the methods and reasoning of scientific investigation applied in the natural sciences at the

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3. See Howard Schweber, *The "Science" of Legal Science: The Model of the Natural Sciences in Nineteenth Century American Legal Education*, 17 *LAW & HIST. REV.* 421, 421–22 (1999) (comparing differing views of nineteenth-century legal scholars concerning the meaning of law as a science).

4. See *id.* at 422 (explaining the differing views described below). Yearnings to make law into a science did not originate in American legal history. Other traces can be found in early Roman law and in later European Law. See PETER STEIN, *ROMAN LAW IN EUROPEAN HISTORY* 79, 99 (1999). The focus of this piece, however, is on the repeated appearance of this theme in American legal history.

5. Schweber, *supra* note 3, at 421.

6. *Id.* at 422.

7. *Id.*

time.<sup>8</sup> Observations of law, like observations of nature, should trace the origins and developmental paths of its doctrine to identify the enduring and stable principles.

“Laws that govern men in society:

operate steadily, constantly, and uniformly; as does the law which draws the rivulet constantly and steadily down-stream . . . . And as a particular motion of the stream is not the law of the stream, but only evidence of the law; so the decision of a court in a particular case is not the law . . . but it is . . . evidence of the law.”<sup>9</sup>

In other words, like the natural science taxonomists of the time, legal scholars should engage in an exhaustive and exact study of laws and cases to discover the universal and natural governing principles of human affairs.<sup>10</sup> These natural governing principles were supposed to be universally acceptable and understandable to all through “common sense,” given that everyone was presumed to share the experience of perception and that everyone’s perceptions were presumed to be consistent.<sup>11</sup> This movement represented reconceptualizing law as analogous to the natural science movement of the time.

This approach, however, failed to bring clarity or universal agreement concerning legal principles. Among its many problems, many scholars following the natural science approach argued strongly in favor of slavery during the Civil War.<sup>12</sup> When those views were discredited in the post-Civil War era, the theoretical approaches were discredited as well.<sup>13</sup>

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8. *Id.*

9. JOEL PRENTISS BISHOP, *THE FIRST BOOK OF THE LAW* 47 (1868); see also David Dudley Field, *Magnitude and Importance of Legal Science*, in 1 *SPEECHES, ARGUMENTS, AND MISCELLANEOUS PAPERS OF DAVID DUDLEY FIELD* 517, 526–27 (A.P. Sprague ed. 1884) (analogizing the proper study of law to descending from a mountaintop in order to understand the landscape in its vast, varied, and finite details).

10. See Schweber, *supra* note 3, at 450–51; see also Daniel Mayes, *Whether Law Is a Science: An Introductory Lecture Delivered to the Law Class of Transylvania University, on the 8th of November, 1832*, 9 *AM. JURIST & L. MAG.* 369, 369 (1832) (arguing that “cases are useful; but their greatest use is, that they serve to illustrate principles. If they are read and not resolved into elementary principles, the profit of the reading is not worth the time it occupies”); Stephen A. Siegel, *Bishop’s Orthodoxy*, 13 *LAW & HIST. REV.* 215 (1995).

11. See Schweber, *supra* note 3, at 442–45 (describing the influence of Scottish Common Sense theory on Baconism and the resulting influence on nineteenth-century American legal thought of the two combined).

12. *Id.* at 455–56.

13. *Id.*

Law's love affair with the natural sciences flourished again in the 1870s and found an institutional home with the arrival of Christopher Columbus Langdell as the dean of Harvard Law School.<sup>14</sup> Langdell wanted to transform legal education from the teaching of a craft into a scholarly endeavor worthy of a place of honor among the great universities of the nation.<sup>15</sup> To bring legal education into this fold, Langdell suggested that using scientific methods, scholars could identify fundamental principles and axioms that lawyers could apply to reach the proper solution to any legal problem.<sup>16</sup> Cases would be the data set for the scientific inquiry, and from this data set, one could derive the fundamental principles of private law.<sup>17</sup>

This legal science was not a deductive science, like mathematics, in which a series of true statements can be used to derive another statement that is necessarily true.<sup>18</sup> Rather, it was more an inductive, field science, like botany, in which one uses a series of examples from the available specimens to derive general principles.<sup>19</sup>

The notion of law as a clear and structured science also offered relief from the bewildering array of issues emerging in the late 1800s. With industrialization, the range and complexity of the economic transactions regulated by case law expanded dramatically.<sup>20</sup> This change put tremendous

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14. See Grey, *Langdell's Orthodoxy*, *supra* note 2, at 1 (stating when Langdell became dean).

15. See Nussbaum, *supra* note 2, at 1629.

16. Grey, *Langdell's Orthodoxy*, *supra* note 2, at 5; see Bix, *supra* note 2, at 892 (describing Langdell's inductive approach to discovering the law). Publications at the time included THE SCIENCE OF LAW, which contained a foldout chart, "Scheme of a Body of Laws for a Modern State." SHELDON AMOS, THE SCIENCE OF LAW 19 (1874) (noting that law is "composed of elements as permanent and universal as the elements of human nature itself"); E. L. CAMPBELL, THE SCIENCE OF LAW ACCORDING TO THE AMERICAN THEORY OF GOVERNMENT 6 (Fred. B. Rothman & Co. 1981) (1887) ("Our claim is that the principles of justice are . . . a definite body of immutable principles, and hence constitute a true science."); see Veilleux, *supra* note 2, at 1975 nn.44–48 and accompanying text (describing these and other scholarly publications of the late 1800s).

17. See Veilleux, *supra* note 2, at 1975.

18. Bix, *supra* note 2, at 892 (noting that Langdell's analyses were not deductive).

19. *Id.*; see SIMON BLACKBURN, THE OXFORD DICTIONARY OF PHILOSOPHY 192 (1994) (describing inductive reasoning).

20. See Lawrence Lessig, *Fidelity and Constraint*, 65 *FORDHAM L. REV.* 1365, 1403 (1997) ("After 1870, the range and complexity of the economic transactions regulated by the common law grew tremendously.").

pressure on a legal system that frequently relied on a judge's understanding of long-standing customs.<sup>21</sup> One could not rely on custom in the face of rapid changes in the nature and complexity of societal interactions. Law, conceptualized as a structured science, offered the hope of clarity and simplicity in the increasingly complex legal world. Langdell, for example, argued that if law could be approached as a science, legal doctrines "could be so classified and arranged that each should be found in its proper place, and nowhere else, they would cease to be formidable from their number."<sup>22</sup>

The legal system, however, stubbornly refused to conform to any notion of a rational science. Its treasured data bank of cases failed to reveal a clear structure of higher order principles branching into ancillary rules, despite valiant efforts at analysis.<sup>23</sup> In particular, critics pointed out that cases frequently contradicted each other and any apparent guiding principles.<sup>24</sup> Later attempts to organize the law into restatements and treatises produced great and complex compendiums lacking the simple clarity suggested in the notion of law as a science.<sup>25</sup>

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21. *Id.*

22. Stephen M. Feldman, *The New Metaphysics: The Interpretive Turn in Jurisprudence*, 76 IOWA L. REV. 661, 661 n.5 (1991) (quoting CHRISTOPHER C. LANGDELL, A SELECTION OF CASES ON THE LAW OF CONTRACTS viii–ix (2d ed. 1879)).

23. As Austin noted in his lectures on jurisprudence, "[i]deal completeness and correctness . . . is not attainable . . . though the system had been built and ordered with matchless solicitude and skill." 2 JOHN AUSTIN, LECTURES ON JURISPRUDENCE 997–98 (5th ed. 1885).

24. See Felix S. Cohen, *Transcendental Nonsense and the Functional Approach*, 35 COLUM. L. REV. 809, 814 (1935) (noting that the practice of legal reasoning often ignores facts and practical consequences and rather is based on the manipulation of legal concepts in certain approved ways); see also KELMAN, *supra* note 2, at 46 ("One of the most entertaining sports that [critics of Langdellian legal science] engaged in was to tweak their treatise-writing, rule-collecting Formalist forbearers for announcing that they had discovered legal rules that were, on inspection, utterly vacuous and question begging.").

25. See Grey, *Modern American Legal Thought*, *supra* note 2, at 500-01 (describing the collaboration among Langdellians in writing the first Restatements, and noting the Legal Realist critiques of these Restatements as well as the treatises of the era); Thurman W. Arnold, *Institute Priests and Yale Observers—A Reply to Dean Goodrich*, 84 U. PA. L. REV. 811, 820 (1936) (criticizing restatements).

## II. PROGRESSIVES

As law failed to live up to the notion of an inductive natural science, other schools of thought emerged in opposition. For example, the Progressives, including scholars like Holmes, Pound, and Cardozo, suggested that legislators rather than judges were the main instruments of law, and argued that law could be understood as policies rather than rules.<sup>26</sup> Many Progressives felt that although an exact, internal legal science was a chimera, law could be reconstructed as a policy science around social science. Law would not be a deductive science but one of informed experiment in which appropriate legal actors could use social science to guide them to various policies that could be tested and refined across time.<sup>27</sup>

In this context, Progressives urged that legislators and experts at administrative agencies should apply social science as a guide to the proper policies. Judges, too, could apply social science to fill in the gaps left by legislators in their quest for the right policies, although their role should be limited.<sup>28</sup> Thus, law itself might not be a physical science, but legal actors could operate like social scientists, engaging in a type of informed experiment to find their way to an enlightened path for society.

## III. LEGAL REALISTS

The Legal Realists followed quickly on the heels of the Progressives.<sup>29</sup> They argued that the Progressives' cherished policy science was no more clear or predictable than the rules and axioms of a natural science approach. Legal Realists believed that laws and precedents were indeterminate, capable

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26. See generally Grey, *Modern American Legal Thought*, *supra* note 2, at 497-501 (describing the Progressive movement).

27. See *id.* at 500 (noting the suggestion of Progressive legal scholars that lawyers should become "social engineers," systematically investigating social problems, familiarizing themselves with the available methods of reform, and testing whether these had the intended effects).

28. See *id.* at 499 (describing the Progressives' notion that "Courts should defer to legislatures in constitutional cases, should ascertain and promote legislative purpose in interpreting statutes, and should draw on the policies reflected in statute law to sublegislate the fields left by legislatures to common law development").

29. See Stephen M. Feldman, *The Transformation of an Academic Discipline: Law Professors in the Past and Future (or Toy Story Too)*, 54 J. LEGAL EDUC. 471, 482-83 (2004) (noting the development of Progressive legal theories such as those of Roscoe Pound around the turn of the twentieth century, and the emergence of Legal Realism in the 1920s and 1930s).

of a myriad of interpretations. Words, according to the Realists, are inherently open-ended.<sup>30</sup> Moreover, conflicting rules frequently cover the factual circumstances, and no autonomous mechanical rules can clearly govern the conflict.<sup>31</sup>

Realists thought that judges inevitably responded to their own perspectives and prejudices.<sup>32</sup> The process of law, according to the Realists, involved “intuitive dispute resolution in the light of unconsciously absorbed custom . . . .”<sup>33</sup>

Law’s interrelation with science endured for the Realists, but in a slightly different form. For the Realists, judges and legal scholars could use social science to better understand *themselves*.<sup>34</sup> Such self-examination would reveal the

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30. See Jerome Frank, *Words and Music: Some Remarks on Statutory Interpretation*, 47 COLUM. L. REV. 1259, 1263 (1947) (noting that people’s annoyance with the way judges sometimes interpret apparently simple statutory language is based on the false assumption that each verbal symbol refers to one and only one specific subject, and a denial of the wide range of ambiguities a word may have that can only be resolved through consideration of context and background); Felix Frankfurter, *Some Reflections on the Reading of Statutes*, 47 COLUM. L. REV. 527, 528 (1947) (“[Words] are symbols of meaning. But unlike mathematical symbols, the phrasing of a document, especially a complicated enactment, seldom attains more than approximate precision.”); see also KELMAN, *supra* note 2, at 12–13 (describing the Realists).

31. See KELMAN, *supra* note 2, at 45; Roscoe Pound, *Mechanical Jurisprudence*, 8 COLUM. L. REV. 605, 606–14 (1908) (warning against the cyclical petrification of the common law where longstanding legal doctrines are unexamined and mechanically applied, and ultimately fail to respond to the human conditions and complexities of present day life).

32. See, e.g., Karl N. Llewellyn, *Law and the Modern Mind: A Symposium*, 31 COLUM. L. REV. 82, 83 (1931) (reviewing JEROME FRANK, *LAW AND THE MODERN MIND* (Anchor Books 1963) (1930)) (contrasting the myth that the great bulk of a judge’s work is “mere routine application of accepted rules” with the reality that no different from witnesses’, a judge’s perception of “the facts” varies according to temperament and circumstance, and a judge’s selection, stress, and arrangement of “the facts” can make the most peculiar case look routine).

33. See Grey, *Modern American Legal Thought*, *supra* note 2, at 503.

34. See Karl N. Llewellyn, *Some Realism about Realism—Responding to Dean Pound*, 44 HARV. L. REV. 1222 (1931) (exploring social scientific self-examination through the employment of statistical, textual analysis upon the then-emerging writings of perceived new legal realists in order to discover if indeed a common school of legal realism existed); JEROME FRANK, *LAW AND THE MODERN MIND* 178–80 (Anchor Books 1963) (1930) (using psychology to explain that the wish for things certain and secure is an infantile, regressive tendency and to advocate that judges recognize that all rules and standards are fictions, to appreciate law’s dynamic qualities, and to “struggle against the drag of childish nostalgia for the oversecure and impossibly serene . . . .”); see also Grey, *Modern American Legal Thought*, *supra* note 2, at 510 (describing

indeterminate and individualized nature of judging and would help judges better understand and follow their unconscious instincts.<sup>35</sup> Legal actors were still analogous to social scientists but the subject of study was legal decision-makers rather than the law itself.

The Realists' faith in social science was also reflected in their devotion to the continued rise of the regulatory state. Both Realists and Progressives viewed administrative government as the vehicle for developing scientific solutions to the economic and social crises of the 1920s and 1930s.<sup>36</sup> Judges were viewed as lacking the means, the expertise, and perhaps the will to bring about the changes necessary to keep pace with the tremendous upheavals of the time.<sup>37</sup>

Administrative agencies during this period were given extraordinary discretion, in deference to their expertise.<sup>38</sup> This deference was justified on grounds both that agency experts were superior in capacity and that their expertise made them more trustworthy. For example, in describing the need for limited judicial oversight, the Supreme Court commented that an agency "deals with a subject that is highly specialized and so complex as to be the despair of judges" and is "better staffed for its task than is the judiciary."<sup>39</sup> In another case, the Court expressed its faith in agency experts by noting that "the training that is required, the comprehensive knowledge which is possessed, guards or tends to guard against the accidental abuse of its powers or, if the abuse occur [sic], to correct it."<sup>40</sup> Thus, expertise would make those at agencies the neutral and dependable arbiters of difficult legal dilemmas.

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the Legal Realists).

35. See Grey, *Modern American Legal Thought*, *supra* note 2, at 501; see also LAURA KALMAN, *THE STRANGE CAREER OF LEGAL LIBERALISM* 16 (1996) (noting that legal realists "debunked the rule of law as part of an effort to improve it" by treating it as a tool of social policy).

36. Reuel E. Schiller, *Reining in the Administrative State: World War II and the Decline of Expert Administration*, in DANIEL R. ERNST & VICTOR JEW, *TOTAL WAR AND THE LAW* 185, 201 (2002).

37. See KALMAN, *supra* note 35, at 18 (describing Supreme Court hostility to the New Deal and the resulting backlash).

38. See Schiller, *supra* note 36, at 186–88; Reuel E. Schiller, *Enlarging the Administrative Polity: Administrative Law and the Changing Definition of Pluralism, 1945-1970*, 53 VAND. L. REV. 1389, 1404 (2000) (describing New Deal era judicial deference to administrative agencies).

39. *Dobson v. Comm'r*, 320 U.S. 489, 498 (1943).

40. *Interstate Commerce Comm'n v. Chi., Rock Island & Pac. Ry. Co.*, 218 U.S. 88, 102 (1910).

## IV. LEGAL PROCESS SCHOOL

Faith in the administrative state was reinforced by the Legal Process School that began to emerge in the late 1930s in response to Legal Realism.<sup>41</sup> If one's perspective is hopelessly clouded and words are inherently open-ended, how does a legal system function? Most importantly, if the Legal Realists were right that rules are subject to infinite interpretations and that perspectives can never be objective, how can law hope to be anything more than the subjective whims of individual judges? What rational domain is left for law?<sup>42</sup>

The Legal Process School offered one response to such unsettling visions of indeterminacy and unconstrained discretion. Legal Process argued that law could function best in the realm of choosing the institution or procedure appropriate for resolving a particular question.<sup>43</sup> Law might not have a monopoly on finding principles that would yield the right answer, or on the wise and selfless neutrality that would lead to a universally acceptable result. Nevertheless, legal actors might be particularly skilled at identifying which institutions and processes could function most appropriately for addressing the question at hand.<sup>44</sup>

Tucked into the Legal Process perspective was the notion that the legal system has limited competence for addressing some of the issues that come before it. In that terrain, legal actors should simply defer to the experts.<sup>45</sup> This instinct to circumscribe the domain of law by deferring to experts is a

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41. See Bix, *supra* note 2, at 896 (describing the Legal Process school as a response to Legal Realism); KALMAN, *supra* note 35, at 19 (discussing the timing of the emergence of the Legal Process School).

42. See Bix, *supra* note 2, at 896 (describing discomfort in the wake of the Legal Realist critique).

43. See KELMAN, *supra* note 2, at 6 (noting that the Legal Process school includes "the proposition that the fundamental political choices we must make are ones involving the allocation of decision-making authority").

44. See Bix, *supra* note 2, at 897; Calabresi, *supra* note 2, at 2143-44 (describing the Legal Process school using the issue of ownership of body parts); see also Schiller, *Enlarging the Administration Polity*, *supra* note 37, at 1402 (noting that process theorists such as Bickel, Wechsler, Wellington, Sachs, and Hart, recommended that "each branch of government undertake the tasks for which it was best suited").

45. See WILLIAM N. ESKRIDGE, JR., *DYNAMIC STATUTORY INTERPRETATION* 172 (1994) (pointing out that the Legal Process school prefers "[basing] decisions on . . . deference to other decision makers, especially agencies and arbitrators").

theme that echoes in modern manifestations of law and science.

Critics of the Legal Process School would later suggest that arguments made about one institution could be made for any other legal institution.<sup>46</sup> From this perspective, similar arguments of bias and lack of access can be leveled at any institution in relation to any question. Thus, the promise of improving law by evaluating and comparing institutions remained unfulfilled.

In general, law's euphoria over agency expertise, so strong in the 1920s and 1930s, soured within a couple of decades. By the 1950s and 1960s, Americans had gained experience abroad with the monstrous expressions of administrative power in fascist states as well as experience at home with wartime agencies that more often appeared to be "incompetent bullies" rather than rational, neutral arbiters.<sup>47</sup> Agencies would continue to exist, along with their powerful impact on the American landscape. Once admitted, the administrative expertise would not be expelled. Nevertheless, the image of an administrative state in which experts would solve the legal system's intractable problems faded.<sup>48</sup>

## V. LAW AND ECONOMICS

One cannot examine the interrelation of law and social science without paying homage to the Law and Economics movement. Law and Economics is perhaps the most influential school of thought that has specifically tried to merge law with a particular social science, in this case economics.<sup>49</sup>

Law and Economics gained prominence in the 1970s.<sup>50</sup> The elegance and simplicity of Law and Economics offered great appeal to a legal academic community still reeling from the devastating critiques of the Legal Realists and the indeterminacy of Legal Realism.<sup>51</sup> Law and Economics can be

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46. KELMAN, *supra* note 2, at 190–91.

47. *See* Schiller, *supra* note 37, at 201.

48. *See generally id.* at 185–201 (describing the disenchantment with the administrative state and the imposition of due process requirements and court supervision).

49. *See* ANTHONY T. KRONMAN, *THE LOST LAWYER* 166 (1993) (“[Law and Economics] has had the greatest influence on American academic law in the past quarter-century.”).

50. KELMAN, *supra* note 2, at 114.

51. *See* KELMAN, *supra* note 2, at 118 (noting that the so-called Chicago school of Law and Economics brought a message of simplicity “to an academic and social world in search of simplicity”); *see also* Udo Mattei, *The Rise and*

seen as suggesting a solution to the turmoil that had plagued post-Realist legal academics, who had been taught that legal rules were essentially no more than policy decisions.<sup>52</sup>

According to Law and Economics, the proper role of legal actors is to apply the insights of economics, particularly neo-classical price theory, to legal questions in an effort to craft efficient legal rules that create the proper incentives for optimal behavior.<sup>53</sup> Applying these theories to create legal rules would promote satisfaction of the greatest possible level of overall societal wants.<sup>54</sup> For example, Law and Economics scholarship in tort law has suggested that the goal of tort law and regulation should be to create the proper incentives that would lead individuals to internalize the consequences that their decisions inflict on others, thereby minimizing the divergence between private and social costs.<sup>55</sup>

In one respect, Law and Economics can be considered a variant of the Legal Process School. Law and Economics scholars treat “the market” as a separate institution in itself. Legal actors must consider whether the institution of the market is more capable of resolving the problem at hand than courts or administrative agencies.

Application of Law and Economics concepts requires acceptance of certain assumptions that many scholars are unwilling to accept.<sup>56</sup> Such assumptions include that human

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*Fall of Law and Economics: An Essay for Judge Guido Calabresi*, 64 MD. L. REV. 220, 234–35 (2005) (noting that characteristics such as relative simplicity, political ambiguity, and universality helped fuel the spread of Law and Economics).

52. See KELMAN, *supra* note 2, at 125.

53. See Herbert Hovenkamp, *Antitrust Policy After Chicago*, 84 MICH. L. REV. 213, 224 (1985) (“One important difference between the neoclassical market efficiency model [used by Law and Economics scholars] and earlier economic models is that the neoclassical model claims a much greater ability to distinguish between efficient and inefficient policies”); see also Richard A. Epstein, *Law and Economics: Its Glorious Past and Cloudy Future*, 64 U. CHI. L. REV. 1167, 1170 (1997) (describing Law and Economics as best being a “mode of inquiry”); Hovenkamp, *supra* note 2, at 822; Katz, *supra* note 2, at 2238 (noting that positive law and economics sees law merely as a set of constraints within which individual citizens maximize).

54. Hovenkamp, *supra* note 2, at 825–26; see also Katz, *supra* note 2, at 2248 (1996) (noting Bentham’s nineteenth-century utilitarian idea that a reasonable comparison of utility across society was possible and would achieve the greatest good for the greatest number of people).

55. Epstein, *supra* note 54, at 1171.

56. See Hovenkamp, *Antitrust Policy After Chicago*, *supra* note 53, at 226–

wants can be reduced to, and accurately measured in, economic terms; that human beings are rational actors, and that price theory is accurate and can be applied with specificity to an individual occurrence of human or institutional behavior.<sup>57</sup> Most controversial is the descriptive claim by some Law and Economics scholars that the legal system inevitably moves toward an efficient result.<sup>58</sup> Even some prominent Law and Economics scholars have questioned the validity of that description.<sup>59</sup>

Over time, many of the assumptions of Law and Economics have come under attack.<sup>60</sup> Some critics have argued that human beings are not rational actors possessing full and complete information.<sup>61</sup> Others have argued that human wants cannot be accurately expressed in economic terms.<sup>62</sup> Still

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29 (listing basic assumptions of the neoclassical market efficiency model upon which the law and economics school is based).

57. *But see* Hovenkamp, *supra* note 2, at 827 (suggesting that “[t]he profit-maximization hypothesis is probably not verifiable in any universal sense”).

58. *See* Epstein, *supra* note 54, at 1169–70 (criticizing a law and economics argument by Posner); Grey, *Langdell’s Orthodoxy*, *supra* note 2, at 53 (“Posner finds ‘efficiency,’ with all the connotation of approval that term carries in his theory, in the content as well as the methods of Langdellian private law.”).

59. *See* Epstein, *supra* note 54, at 1170 (“The positive theory of an efficient common law utterly fails to explain why, with transaction costs in decline and information more readily available, judicial regulation should be expected to increase.”); *see also* John J. Donohue III, *The Law and Economics of Tort Law: The Profound Revolution*, 102 HARV. L. REV. 1047, 1049–50 (1989) (comparing Landes’ and Posner’s view that tort law is efficient and serves to minimize accident losses and prevention costs with Shavell’s more cautious and qualified approach).

60. *See* Katz, *supra* note 2, at 2241 (“Methodological reductionism is a model, not a metaphysical truth, and, like all models, aesthetic and pragmatic considerations influence the decision to use it.”).

61. Christine Jolls et al., *A Behavioral Approach to Law and Economics*, in BEHAVIORAL LAW AND ECONOMICS 13, 37 (Cass R. Sunstein ed., 2000); William J. Barnes, Jr., *Revenge on Utilitarianism: Renouncing a Comprehensive Economic Theory of Crime and Punishment*, 74 IND. L.J. 627, 628 (1999) (noting that the “rational actor” assumption makes it difficult for Law and Economics scholars to produce sound theories in criminal law); *see also* Katz, *supra* note 2, at 2229 n.2 (citing scholars who are critical of Law and Economics’ rational choice theory); Daniel A. Farber, *Toward a New Legal Realism*, 68 U. CHI. L. REV. 279, 280–81 (2001) (reviewing CASS R. SUNSTEIN, ED., BEHAVIORAL LAW AND ECONOMICS (2000)).

62. *See* Hovenkamp, *supra* note 2, at 836 (“Limiting welfare to wealth maximization amounts to a hopelessly impoverished view of well-being.”); Nussbaum, *supra* note 2, at 1636 (citing Amartya Sen and describing the difficulty of measuring human welfare).

others have expressed concern that those who engage in Law and Economics fail to test their hypotheses and conclusions with the degree of rigor that economists would demand.<sup>63</sup> Finally, an increasing body of literature has argued that institutional interactions are far more complex than originally suggested by the founders of Law and Economics.<sup>64</sup>

Despite these criticisms, Law and Economics has had a profound impact on modern legal thought. Modern courts and scholars must now try to manage that economic influence and to make economic insights useful within a judicial setting.<sup>65</sup>

## VI. CRITICAL LEGAL STUDIES

Although less focused on science, one cannot understand twentieth-century legal thought or the current state of legal thought without mention of the Critical Legal Studies (CLS) movement. Understanding the criticisms leveled by the CLS movement is important for understanding the dynamic of what drives us to look for answers in the form of science.

CLS emerged in the 1970s around the same time as the emergence of Law and Economics. Unlike the Legal Realists, CLS scholars did not believe in the complete indeterminacy of language. Rather, CLS argued that even when language and legal rules are crystal clear, law is destined to be inherently contradictory. This contradiction occurs because society is not

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63. See Hovenkamp, *supra* note 2, at 822–23 (criticizing inadequate hypothesis testing and noting that the danger of dissolving “into a kind of mathematically supported storytelling is of particular concern in law and economics”).

64. Ian Ayres, *Playing Games with the Law*, 42 STAN. L. REV. 1291, 1315–16 (1990) (explaining that game theory challenges Law and Economics’ presumption that market competition is efficient because “under at least certain assumptions markets can fail to promote social welfare”); Michael S. Jacobs, *The New Sophistication in Antitrust*, 79 MINN. L. REV. 1, 37 (1994) (“The post-Chicago school builds on the industrial organization approach. [By] arguing that the broad generalizations of price theory are inappropriate when small numbers of firms act strategically . . . [to exploit] market imperfections to [the] disadvantage [of their] competitors.”); Steven C. Salop, *Anticompetitive Overbuying by Power Buyers*, 72 ANTITRUST L.J. 669, 683 (2005) (noting that companies have been known to engage in predatory “overbuying” whereby inputs are purchased solely to deny them to rivals and then discarded); see also Epstein, *supra* note 54, at 1174 (concluding that “the study of legal doctrine and theory has to be enriched with a greater appreciation of institutional arrangements”).

65. See *supra* text accompanying notes 50–66 (offering perspectives on current debates in law and economics).

committed to either strict rules or flexible standards as the proper approach to the interpretation of law.<sup>66</sup> Vacillation between the two inevitably produces instability on every significant issue, and no resolution is possible.<sup>67</sup> Moreover, the inevitable conflicts cause law to privilege one strain over another for reasons other than objective analysis and logic.

CLS scholars rejected the notion that legal actors could ever objectively study the consequences of alternative legal rules without the distortive effects of the artificial categories that we create and impose on legal questions.<sup>68</sup> Nevertheless, some CLS scholarship reads much like a psychological analysis of human beings, following the social science of the time. CLS scholar Roberto Unger, for example, waxes poetic on the notion that the self must seek recognition from others in order to acquire coherence.<sup>69</sup> Moreover, many CLS scholars advocated exposure and awareness of the bias of legal actors, wherever possible.<sup>70</sup> Thus, CLS encouraged legal actors to critically examine themselves as a focus of study, despite the inevitable imperfection of the enterprise.

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66. See KELMAN, *supra* note 2, at 45 (“[T]he CLS position has emphasized the degree to which the question of the *extent* to which governing bodies are committed to *total* rule enforcement is itself invariably ambiguous . . .”).

67. See *id.* at 15 (describing the clash between law’s affinity for rules and its attraction to legal standards).

68. See KELMAN, *supra* note 2, at 275; see also David M. Trubek, *Where the Action Is: Critical Legal Studies and Empiricism*, 36 STAN. L. REV. 575, 617–18 (1984) (“[E]mpirical researchers who spend years analyzing the answers to complicated surveys about disputes are like madmen wandering in an asylum that they themselves have constructed.”).

69. See ROBERTO MANGABEIRA UNGER, *KNOWLEDGE AND POLITICS* 55–62 (1975); ROBERTO MANGABEIRA UNGER, *PASSION: AN ESSAY ON PERSONALITY* 53–64, 95–100 (1984).

70. See David S. Caudill, *Disclosing Tilt: A Partial Defense of Critical Legal Studies and a Comparative Introduction to the Philosophy of the Law-Idea*, 72 IOWA L. REV. 287, 295 (1987) (“A significant CLS goal is to raise awareness of unexamined, assailable preferences . . .”); KELMAN, *supra* note 2, at 275 (noting that by abandoning those distortions that we can identify we move toward transformation); Trubek, *supra* note 68, at 591 (1984) (“While Critical Legal scholars seek to show relationships between the world views embedded in modern legal consciousness and domination in capitalist society, they also want to *change* that consciousness and those relationships. [Thus,] the analysis of legal consciousness is part of a transformative politics.”); see also G. Edward White, *The Inevitability of Critical Legal Studies*, 36 STAN. L. REV. 649, 652 (1984) (noting that CLS’ examination of values extends beyond the individual preferences of legal actors, but also attacks the collective value system of legal culture as a whole).

## VII. EMPIRICAL LEGAL SCHOLARSHIP

Law and Economics attempts to merge law with the particular social science of economics. As the twenty-first century is unfolding, however, the legal system is witnessing the emergence of a new effort to broadly apply the general methods of modern social science research to the study of law. The current ascendance of empirical legal scholarship marks a new attempt to import general social science methods into the law, or at least certain social science methods. No one, of course, suggests that legal actors should engage in double-blind studies, assigning certain offenders to long prison terms and others to shorter terms, for example, in order to compare the results. Nevertheless, scholars engage in statistical analyses of the results across different jurisdictions that apply varying approaches.

Empirical studies in the modern legal context generally involve a model-based approach coupled with application of a quantitative method.<sup>71</sup> Although such approaches are not new, there has been a recent and dramatic expansion of empirical scholarship in law as evidenced by working groups at leading law schools, law review symposia, conferences, seminars, and other programs.<sup>72</sup>

The expansion has drawn both enthusiasm and considerable criticism.<sup>73</sup> One extensive study of empirical legal

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71. Tracey E. George, *An Empirical Study of Empirical Legal Scholarship: The Top Schools*, 81 IND. L.J. 141, 141 (2006).

72. See *id.* 142 & 148 (listing examples and noting Harvard's Program on Empirical Legal Studies (PELS), UCLA's Empirical Research Group (ERG), Washington University's Workshop on Empirical Research in the Law (WERL), and a similar program at Northwestern); Theodore Eisenberg, *Why do Empirical Legal Scholarship?* 41 SAN DIEGO L. REV. 1741, 1742 (2004) (noting the same programs as well as initiatives at Cornell Law School and University of Wisconsin Law School).

73. See Gregory Mitchell, *Empirical Legal Scholarship as Scientific Dialogue*, 83 N.C.L. REV. 167, 169-174 (2004) (discussing criticisms of modern empirical legal scholarship and responses to those criticisms); see generally Elizabeth Chambliss, *When do Facts Persuade? Some Thoughts on the Market for Empirical Legal Studies*, 71 LAW & CONTEMP. PROBS. 17 (2008) (detailing criticisms of modern empirical legal scholarship and responses); see also George, *supra* note 71, at 142 & n. 11 (noting that in 2005, the president of the American Association of Law Schools designated empirical legal scholarship to be his tenure in order to "solidify the claim that [the organization is] indeed THE learned society of scholars for the discipline of law in the United States"); cf. Gerald N. Rosenberg, *Across the Great Divide (Between Law and Political Science)*, 3 GREEN BAG 2D 267, 268 (2000) (noting that "[L]egal academics

scholarship concluded that “serious problems of inference and methodology abound everywhere we find empirical research in the law reviews and in articles written by members of the legal community.”<sup>74</sup> Other scholars have railed against problems such as the inadequate training by legal scholars who engage in empirical work and the ineptitude of student law review editors. As one scholar noted, “research by law students and professors with no formal training in social science methodology provides constant reminders of the limitations of armchair empiricism.”<sup>75</sup> One particularly scathing criticism of an empirical legal work argued that the work would never have made it through peer review in a social science journal and that resulting criticisms of the work’s methodology forced the author’s peers to perform peer review in public, which occurred too late to stop the sensational sound bites from becoming political tools.<sup>76</sup>

Although the modern movement of empirical legal scholarship is still in its infancy, it is already encountering disappointment. It will be interesting to see how long the movement lasts, whether the movement has an enduring effect on the law beyond its glory days, and how the law manages the problems that are already emerging.

#### VIII. CRIMINAL LAW

In addition to the more formal movements, our history abounds with individual moments in which we turn to science to solve law’s intractable problems. We are constantly seduced into believing that some new science will provide answers to vexing legal questions, and we are constantly disappointed. Consider the criminal law question of when a defendant should be found not guilty by reason of insanity. For over a century, the American test for criminal insanity flowed from an 1843 British case focused on the question of whether the defendant showed a complete lack of cognitive ability at the time of the

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routinely make absurd claims that would be rejected out of hand by any political scientist familiar with the literature in the field.”)

74. See Lee Epstein & Gary King, *The Rules of Inference*, 69 U. CHI. L. REV. 1, 15 (2002).

75. See Deborah L. Rhode, *Legal Scholarship*, 115 HARV. L. REV. 1327, 1343 (2002).

76. See Chambliss, *supra* note 73, at 29 (discussing Michele Landis Dauber, *The Big Muddy*, 57 STAN. L. REV. 1899 (2005)).

crime.<sup>77</sup>

Dissatisfaction with the test swelled in the late 1950s and early 1960s, culminating in passage of Section 4.01 of the Model Penal Code.<sup>78</sup> The new test was widely accepted, becoming adopted in almost every federal circuit and in many states as well.<sup>79</sup> It was hailed as a triumph of science. The new test was perceived as embodying the latest advances in psychological knowledge and medical thought, ones that would provide authoritative, neutral grounds upon which all could agree.<sup>80</sup> Science would show the way through the difficult question of whether one should be held criminally accountable for one's actions.

The honeymoon was remarkably short-lived. By the early 1980s, courts and legislatures, reacting to highly publicized cases in which defendants were found not guilty under the new standard, retreated from the Model Penal Code rule with remarkable speed.<sup>81</sup> California, for example, which had adopted the Model Penal Code test in a case in 1978, returned to the prior test with a ballot initiative four years later.<sup>82</sup>

Our embrace of science and our intense disappointment with the Model Penal Code insanity test reflect the problems of trying to import science for the drafting of legal rules. The question of whom we should hold criminally responsible for their actions is a question of morality and societal values.<sup>83</sup>

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77. See Julie E. Grachek, *The Insanity Defense in the Twenty-First Century: How Recent United States Supreme Court Case Law Can Improve the System*, 81 IND. L.J. 1479, 1483 (2006) (describing history of the modern insanity defense and the M'Naghten test); see also *M'Naghten's Case*, (1843) 8 Eng. Rep. 718, 722 ("[T]o establish a defence on the ground of insanity, it must be clearly proved that . . . the party accused was laboring under such a defect of reason . . . as not to know the nature and quality of the act.").

78. MODEL PENAL CODE § 4.01(1) (Proposed Official Draft 1962) (imposing the standard that the defendant was not responsible if, as a result of mental defect or disease, the defendant lacked substantial capacity to appreciate the criminality of the act or to conform conduct to the requirements of the law).

79. See *People v. Drew*, 583 P.2d 1318, 1324 (Cal. 1978).

80. *Id.* at 1324–25.

81. See generally PAUL S. APPELBAUM, *ALMOST A REVOLUTION: MENTAL HEALTH LAW AND THE LIMITS OF CHANGE* 163–209 (1994).

82. Compare *People v. Drew*, 583 P.2d 1318, 1324 (1978) (adopting the Model Penal Code standard) with *People v. Skinner*, 704 P.2d 752, 753, 758–59 (1985) (interpreting the 1982 California ballot initiative as intending to return to the M'Naghten standard).

83. See Richard E. Redding, *The Brain-Disordered Defendant: Neuroscience and Legal Insanity in the Twenty-First Century*, 56 AM. U. L.

Morality is not easy, and no science can take that burden off the shoulders of the law.

One could argue that the abandonment of the Model Penal Code standard reflected popular over-reaction to highly publicized cases, rather than a carefully considered rejection of the doctrine based on its inadequacies. Even from this perspective, however, to the extent that science was expected to provide an authoritative and neutral resolution behind which society could rally, it was a dismal failure.

The insanity defense is a particularly good example of law's love affair with science. When struggling to reform the old nineteenth-century test for insanity, courts and scholars not only tried importing science rules to create a test but also tried exporting the problem to scientific experts. For example, two other standards developed in the 1950s and 1960s would have essentially shifted the decision to expert psychiatrists to opine on whether the defendant's behavior fit particular psychiatric diagnoses. These were the *Durham* rule, adopted in a case in the Circuit Court of Appeals for the District of Columbia, and the Bonnie Rule, proposed by law professor Richard Bonnie.<sup>84</sup>

Like the Model Penal Code's reform, attempts to export the insanity defense problem failed as well, burdened by criticism that these approaches would not properly identify those that society wished to hold morally accountable and instead would open the door to excessive acquittals. The *Durham* rule was reversed by statute and "the Bonnie standard was never adopted."<sup>85</sup> In lamenting the failed Durham test, Judge Bazelon, who wrote the *Durham* opinion, stated "[s]ome think me a disappointed lover."<sup>86</sup>

## IX. GOING FORWARD

Our experience with the insanity defense is particularly important to keep in mind today as we head merrily off into the

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REV. 51, 85 (2006) (noting shifts in insanity rules in light of the acquittal of John Hinckley, who shooting President Reagan, under the Model Penal Codes standard).

84. Amy D. Gundlack-Evans, *State v. Calin: The Paradox of the Insanity Defense and Guilty but Mentally Ill Statute, Recognizing Impairment Without Affording Treatment*, 51 S.D. L. REV. 122, 136–37 (2006); see also *Durham v. United States*, 214 F.2d 862 (D.C. Cir. 1954); Richard J. Bonnie, *The Moral Basis of the Insanity Defense*, 69 A.B.A. J. 194, 196–97 (1983).

85. See Gundlack-Evans, *supra* note 85, at 137.

86. See David L. Bazelon, *Veils, Value and Social Responsibility*, 37 AM. PSYCHOLOGIST 115, 115 (1982).

arms of yet another new science that promises to give us a window into the human mind. Researchers can now use brain scans to see what portions of the brain are activated by a particular person during a given activity.<sup>87</sup> Proponents of using such neuroscience in law suggest enthusiastically that the research will eventually allow the legal system to scientifically answer questions such as whether certain individuals should be held accountable for their actions, whether an individual will engage in future criminal activity, and even the elusive question of what are our deeply shared beliefs upon which the legal system should be based.<sup>88</sup> Before we are swept away by the latest vision of science in law, perhaps we should take a moment to reflect on our past experiences.

Our legal history is full of other examples in which law, when faced with difficult and unsettling problems, turns to science in hopes of a solution and is subsequently disappointed. Similar stories can be told for attempts to let science determine in a civil commitment proceeding whether an individual is imminently dangerous to the community or in a criminal sentencing hearing whether a defendant in sexual or other crimes is capable of rehabilitation.

The issue has arisen with the question of what is in the best interest of the child in custody cases. In that arena, courts increasingly lean on experts to decide the underlying issue, an inclination that has proven unsatisfying. As one scholar has noted, “[c]ourts may be only too willing to be relieved of the responsibility of playing guessing games about a child’s future if they are persuaded that experts’ crystal balls hold the answer.”<sup>89</sup> The problem is not that we are asking scientists to answer legal questions. The problem is also that we are asking scientists to solve our legal quandaries with predictions about human development that they are unable to provide. Outside of extreme circumstances such as abuse or neglect—the situations where legal institutions struggle very little with uncertainty—psychology “lacks any methodologically sound

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87. Anand Giridharadas, *India’s Use of Brain Scans in Courts Dismays Critics*, INT’L HERALD TRIB., Sept. 15, 2008, available at <http://www.iht.com/articles/2008/09/15/asia/15brainscan.php>.

88. See Jeffrey Rosen, *The Brain on Sand*, N.Y. TIMES, Mar. 11, 2007, available at <http://www.nytimes.com/2007/03/11/magazine/11NeuroLaw.t.html>.

89. Lois A. Weithorn & Thomas Grisso, *Psychological Evaluations in Divorce Custody: Problems, Principles, and Procedures*, in PSYCHOLOGY AND CHILD CUSTODY DETERMINATIONS 157, 160 (Lois A. Whitehorn ed., 1987).

empirical evidence allowing psychological predictions” concerning various custody arrangements.<sup>90</sup>

Other examples include legal tests imported into law from economic or social science research that are then far too complex to operate in a legal setting. The rules remain, but the legal system generally is unable to apply them with any significant degree of accuracy. Consider the updated version of the Learned Hand test for negligence liability in tort law.<sup>91</sup> The rule asks that we set negligence at the point where, properly internalized, prevention costs do not exceed accident costs.<sup>92</sup> The ordinary machinery of the judicial system has little capacity to measure that level with any precision.

One can also look at rate setting in public utilities regulation. Consider Stephen Breyer’s scholarship on rate regulation prior to joining the bench:

The possibility of court review has led agencies to keep records demonstrating . . . that [the] decision was rational. . . . Given the multifaceted nature of most problems, the uncertain quality of the information, and the need to consider a broad range of uncertain factors, many technical decisions . . . may reflect only an inspired engineering guess. The engineer may not know precisely where or how the decision emerged—even in his own mind—nor can he necessarily write down a justification for the decision at the time he made it. Thus, records for court review are often made *ex post*. The agency’s lawyers insert into a public record sufficient information to show rational support for each key decision. Cost/benefit analyses are often prepared to support decisions already reached rather than to help determine what future decisions ought to be made.<sup>93</sup>

Thus, in both formal movements and individual movements, law continually turns to science to solve its problems and is continually disappointed. What is important about this pattern is not just our disappointment, but also our inevitable return to the well. The repeated behavior is revealing in that it reflects both our vision of law and our vision of science in relation to law. We so often despair of law’s inability to resolve legal issues to our satisfaction and view science as a source of rescue from our discontent. It is this

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90. *Id.* at 161.

91. The test was first articulated by Judge Learned Hand in 1947. See *U.S. v. Carroll Towing*, 159 F.2d 169, 173–74 (2d. Cir. 1947) (J. Hand).

92. See Restatement (Third) of Torts: General Principles § 4 (Discussion Draft Apr. 5, 1999); WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF TORT LAW* 85–87 (1987) (stating that under proper economic analysis, the burden to avoid the accident should not be less than the expected damages.)

93. STEPHEN BREYER, *REGULATION AND ITS REFORM* 117 (1982).

particular vision that leads us to pursue an illusory certainty that science cannot provide.