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## Evolution, Human Behavior, and Law: A Response to Owen Jones's Dunwody Lecture

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## EVOLUTION, HUMAN BEHAVIOR, AND LAW: A RESPONSE TO OWEN JONES'S DUNWODY LECTURE

Thomas S. Ulen\*

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### I. INTRODUCTION

I am extremely grateful to have been invited to respond to Professor Owen Jones's Dunwody Distinguished Lecture, *Proprioception, Non-Law, and Biolegal History*.<sup>1</sup> The piece is a significant contribution to an important development in legal scholarship of which Professor Jones has been a central pioneer: the relationship between evolutionary psychology and law.<sup>2</sup> That innovation is in its infancy, but already its ability to throw

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\* Alumni Distinguished Professor, College of Law, University of Illinois, and Professor, Institute of Government and Public Affairs, University of Illinois. I am grateful to Owen Jones, Richard McAdams, and Jeff Stake for their comments on an earlier draft. I am very grateful to the Editors of the *Florida Law Review* for their invitation to comment on Owen's lecture and for their help in the editorial process.

1. Owen D. Jones, *Proprioception, Non-Law and Biolegal History*, 53 FLA. L. REV. 831 (2001).

2. Professor Jones comments on the difficulties in characterizing the field of behavioral biology or evolutionary psychology. *Id.* at 832. I shall adopt the practice of referring to his innovation as evolutionary psychology and law.

bright light on important legal issues is startling,<sup>3</sup> and its promise for altering and enlarging our conceptions of the wellsprings of human behavior and their implications for the regulatory function of law is significant.

I shall take as my goal in this response to articulate some concerns that arose in my reading of the lecture and to comment on several implications of Professor Jones's innovative view for some live controversies in the legal academy. I do not take issue with any of the broad themes that Owen has sounded. Indeed, I am persuaded that his elaboration here and elsewhere of the connections between behavioral biology and law is one of the more important and promising projects now ongoing in legal scholarship. First, however, I shall offer a word of self-introduction and apology. Then I shall comment directly on some of the novel claims of this lecture.

## II. BEHAVIORAL LAW AND ECONOMICS AND EVOLUTIONARY PSYCHOLOGY

I want to take a moment to give a brief summary of a topic on which Owen does not lay a great deal of stress in his lecture: behavioral law and economics and its connection to evolutionary psychology. I shall explain the gist of how behavioral psychology has had an impact on law and economics and then summarize the connection between evolutionary psychology and behavioral law and economics. Owen has been the leader in drawing this connection.<sup>4</sup>

### A. *Rational Choice Theory and Behavioral Law and Economics*

I write from the perspective of one steeped in and devoted to the economic analysis of law but with a difference that is, I think, pertinent to the matters at the heart of Owen's Dunwoody Lecture. While I have done my share of arguing in favor of a rational-choice-based conception of

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3. See, e.g., E. Donald Elliott, *The Tragi-Comedy of the Commons: Evolutionary Biology, Economics, and Environmental Law*, 20 VA. ENVTL. L.J. 17 (2001); E. Donald Elliott, *Law and Biology: The New Synthesis?*, 41 ST. LOUIS U. L.J. 595 (1997); Owen D. Jones, *Law and the Biology of Rape: Reflections on Transitions*, 11 HASTINGS WOMEN'S L.J. 151 (2000); Owen D. Jones, *Sex, Culture, and the Biology of Rape: Toward Explanation and Prevention*, 87 CAL. L. REV. 827 (1999); Owen D. Jones, *Introduction to the Symposium on Biology and Sexual Aggression*, 39 JURIMETRICS J. 113 (1999); Owen D. Jones, *Law and Biology: Toward an Integrated Model of Human Behavior*, 8 J. CONTEMP. LEGAL ISSUES 167 (1997); Owen D. Jones, *Evolutionary Analysis in Law: An Introduction and Application to Child Abuse*, 75 N.C. L. REV. 1117 (1997); Jeffrey Evans Stake, *Are We Buyers or Hosts? A Memetic Approach to the First Amendment*, 52 ALA. L. REV. 1213 (2001); Jeffrey Evans Stake, *Darwin, Donations, and the Illusion of Dead Hand Control*, 64 TUL. L. REV. 705 (1990).

4. See Owen D. Jones, *Time-Shifted Rationality and the Law of Law's Leverage*, 95 NW. U. L. REV. 1141 (2001).

human behavior, I have in the recent past come to believe that rational choice theory, which has informed mainstream microeconomics for fifty or more years and all of law and economics for the past twenty years, needs to be tempered (not replaced) by a due regard for the predictable and systematic shortcomings in human cognitive and ratiocinative powers.<sup>5</sup> Russell Korobkin and I (as well as others)<sup>6</sup> have characterized this richer account of human decisionmaking and its implications for law as “law and behavioral science.”<sup>7</sup> None of us is in a position yet to offer a comprehensive account of this melding of predictable human fallibility and rationality, but we can at least indicate some reasons for taking time to search for an amended theory of human decisionmaking that goes beyond rational choice theory.

The central distinguishing contention of this emerging emendation of rational choice theory is that human beings are imperfectly rational. In the

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5. See Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CAL. L. REV. 1051 (2000).

6. See, e.g., BEHAVIORAL LAW AND ECONOMICS (Cass R. Sunstein ed., 2000); Robert J. Frank & Cass R. Sunstein, *Cost-Benefit Analysis and Relative Position*, 68 U. CHI. L. REV. 323 (2001); Chris Guthrie et al., *Inside the Judicial Mind*, 86 CORNELL L. REV. 777 (2000); Samuel Issacharoff, *Can There Be a Behavioral Law and Economics?*, 51 VAND. L. REV. 1729 (1998); Russell B. Korobkin, *Behavioral Analysis and Legal Form: Rules vs. Standards Revisited*, 79 OR. L. REV. 23 (2000); Russell B. Korobkin, *The Efficiency of Managed Care “Patient Protection” Laws: Incomplete Contracts, Bounded Rationality, and Market Failure*, 85 CORNELL L. REV. 1 (1999); Russell B. Korobkin, *The Status Quo Bias and Contract Default Rules*, 83 CORNELL L. REV. 608 (1998); Russell B. Korobkin & Chris Guthrie, *Psychology, Economics, and Settlement: A New Look at the Role of the Lawyer*, 77 TEX. L. REV. 76 (1997); Timur Kuran & Cass R. Sunstein, *Availability Cascades and Risk Regulation*, 51 STAN. L. REV. 683 (1999); Donald C. Langevoort, *The Human Nature of Corporate Boards: Law, Norms, and the Unintended Consequences of Independence and Accountability*, 89 GEO. L.J. 797 (2001) [hereinafter Langevoort, *The Human Nature of Corporate Boards*]; Donald C. Langevoort, *Half-Truths: Protecting Mistaken Inferences by Investors and Others*, 52 STAN. L. REV. 87 (1999); Donald C. Langevoort, *Behavioral Theories of Judgment and Decision Making in Legal Scholarship*, 51 VAND. L. REV. 1499 (1998); Donald C. Langevoort, *Organized Illusions: A Behavioral Theory of Why Corporations Mislead Stock Market Investors (And Cause Other Social Harms)*, 146 U. PA. L. REV. 101 (1997) [hereinafter Langevoort, *Organized Illusions*]; Jeffrey J. Rachlinski, *Heuristics and Biases in the Courts: Ignorance or Adaptation?*, 79 OR. L. REV. 61 (2000); Jeffrey J. Rachlinski & Forest Jorden, *Remedies and the Psychology of Ownership*, 51 VAND. L. REV. 1541 (1998); Jeffrey J. Rachlinski, *A Positive Psychological Theory of Judging in Hindsight*, 65 U. CHI. L. REV. 571 (1998); Jeffrey J. Rachlinski, *Gains, Losses, and the Psychology of Litigation*, 70 S. CAL. L. REV. 113 (1996); David Schkade et al., *Deliberating About Dollars: The Severity Shift*, 100 COLUM. L. REV. 1139 (2000); Cass R. Sunstein, *Human Behavior and the Law of Work*, 87 VA. L. REV. 205 (2001); Cass R. Sunstein, *Deliberative Trouble? Why Groups Go to Extremes*, 110 YALE L.J. 71 (2000) [hereinafter Sunstein, *Deliberative Trouble?*]; Cass R. Sunstein, *Economics & Real People*, 3 GREEN BAG 2D 397 (2000); Cass R. Sunstein, *Cognition and Cost-Benefit Analysis*, 29 J. LEGAL STUD. 1059 (2000).

7. See Korobkin & Ulen, *supra* note 5, at 1057.

pursuit of their ends people make systematic, predictable mistakes that the law can take into account in its attempts to regulate human behavior.<sup>8</sup>

Consider this example: there is ample experimental evidence to suggest that people are systematically overly-optimistic about the likelihood of good things happening to them in the future, regardless of what experience and statistical information should teach them.<sup>9</sup> For example, the vast majority of couples who are about to marry predict that they will not divorce, notwithstanding the widely known fact that approximately fifty percent of all marriages end in divorce.<sup>10</sup>

If this over-optimism is a common human failing, then there are profound implications for law (and for the economic analysis of law). Suppose, for instance, that we seek to deter crime by raising the expected cost of crime.<sup>11</sup> According to the standard model, as informed by rational choice theory, we deter crime in this manner because we assume that criminals are rationally self-interested and that they compare the expected costs and expected benefits in deciding whether to commit a crime. If the expected costs exceed the expected benefits, they do not commit the crime; however, if the expected benefits exceed the expected costs, they commit the crime. This powerful theory suggests that society can deter crime by manipulating the expected costs and benefits of criminal (and legitimate) behavior, for example, by raising the probability of detection, arrest, and conviction; by increasing the penal sanction; and by making legitimate work more widely available and more rewarding. This theory has been used to inform criminal justice policy for about twenty years, and it *may* be the case—there is conflicting evidence on this point—that the theory is responsible for the remarkable drop in crime in the United States since 1994.<sup>12</sup>

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8. I have argued elsewhere that the distinguishing aspect of rational choice theory is that decisionmakers who are said to be operating according to its assumptions do not make mistakes. *See id.* at 1061-62. More accurately, in rational choice theory decisionmakers only make mistakes when they are deliberately misinformed, e.g. through fraud or strong informational asymmetries such as those in the prisoner's dilemma, or in the sense that they take actions that, while individually optimal, are *socially* suboptimal. This is the case with monopoly, public goods, and external costs and benefits. I confess to some unease about calling these behaviors "mistakes." More precisely, they are behavioral regularities that are at odds with the predictions of rational choice theory.

9. *Id.* at 1091.

10. Lynn A. Baker & Robert E. Emery, *When Every Relationship Is Above Average: Perceptions and Expectations of Divorce at the Time of Marriage*, 17 LAW & HUM. BEHAV. 439, 443 (1993).

11. We can do this by heightening the probability of detection, arrest, and conviction of a crime and by raising the level of the criminal sanction. We can also do this by raising the opportunity cost of crime, i.e., by making gainful employment more rewarding. *See* ROBERT D. COOTER & THOMAS S. ULEN, LAW AND ECONOMICS 427-88 (3d ed. 1999), elaborating on Gary Becker's economic theory of crime and punishment.

12. There is a vast literature on this important issue. For the basic statistics on the decline in

But what if those whose criminal behavior we seek to deter are, like most human beings, overly-optimistic? In that case, they may systematically overestimate the expected benefits or underestimate the expected costs of crime. They may, for instance, assume that they are less likely to be caught than is in fact the case; or, if caught, they may underestimate the likelihood of being convicted; or, if convicted, they may believe that they will escape a severe sentence or heavy fine. They will be, in short, overly optimistic about their chances of getting away with the crime, and that may induce more crime than anticipated under rational choice theory.

One implication may be that, in order to achieve a given level of deterrence, the authorities would have to make punishment harsher and more certain than would be the case if potential criminals were perfect, rational calculators. For example, the existence of significant over-optimism among potential criminals may be the strongest argument in favor of mandatory minimum sentencing laws.

But life is never simple. While over-optimism may appear to make one aspect of the study of crime more straightforward, at the same time it makes another aspect less straightforward. For if potential criminals are systematically overly optimistic, then how are we to explain variations in the amount of crime over time? The usual factors used to explain variation may not be relevant. One can imagine alternative explanations that have a regard for the systematic over-optimism of potential criminals. As an illustration, it may be the case that because young males account for such a large fraction of all the crime committed and because young males may tend to be more optimistic about succeeding at crime than are other groups in society,<sup>13</sup> variations in the amount of crime may be attributable to changes in the percentage of young men relative to other groups in the population. Or it might be the case that the degree of over-optimism among potential criminals varies in ways that we do not yet discern. For example, over-optimism may vary with the business cycle, either directly or inversely (we do not know which, if either). Or it might be the case that the appropriate criminal sanctions, in light of excessive optimism, vary over time in ways that we do not perceive, so that the level of deterrence varies in ways unanticipated by the criminal justice system authorities.

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crimes against property and other persons and an introduction to some of the theories that seek to explain the decline in crime, see the website companion to LAW AND ECONOMICS, at <http://www.cooter-ulen.com/crime.htm>. The most controversial and interesting of those theories is one that links reductions in crime to the legalization of abortion. See John J. Donohue & Steven D. Levitt, *The Impact of Legalized Abortion on Crime*, 116 Q. J. ECON. 379 (2001).

13. There may be other characteristics of young males—such as a relatively low degree of risk aversion—that make their relative proportion in the population a significant factor in explaining variations in the amount and kind of crime.

I want to reiterate my point that behavioral law and economics does not propose to scrap rational choice theory entirely. Rather, it seeks to amend it to take due account of systematic human fallibilities. It does not make the indefensible claims that human beings are never rational, or that they are always irrational. What it hopes to do is to give an account of human decisionmaking that is empirically grounded, that recognizes statistical regularities in human behavior, but that also finds nuances in that behavior that arise from age, gender, education, circumstance, and other relevant factors.

### B. *Evolutionary Psychology and Behavioral Law and Economics*

There is a direct and important connection between behavioral law and economics and Owen's project of bringing evolutionary psychology to the law. The connection arises from the fact that evolutionary psychology offers the best explanation as to why human beings are imperfectly rational decisionmakers. Specifically, evolutionary psychology suggests that the human brain and mind and, therefore, human psychology, are the products of the process of natural selection. That is, the human mind, like other aspects of the human animal, evolved through natural selection in particular circumstances over very long time periods. If, to illustrate this point, humans are psychologically inclined to cooperate with other humans when they observe others behaving cooperatively and to retaliate against those whom they perceive not to be cooperating, regardless of the presence or absence of material incentives to cooperate,<sup>14</sup> then we are probably observing behavior that has been found to be so useful to humans living in groups that it has become hardwired into our brains.

Because human affairs have moved much more quickly than has human evolution, we are now inhabiting environments that are vastly different from those in which our ancestors' struggle for existence shaped individual and societal characteristics. As a result, there is, in some instances, a mismatch between the brain's cognitive and ratiocinative abilities and the tasks that we currently face. For example, the predisposition toward optimism noted above may have served humans well in circumstances in which there was a high return to soldiering on after difficult-to-catch prey or after a traumatic natural disaster, like the plague, wiped out a large portion of one's family and friends. But it is not so clear that a predisposition to optimism serves one so well today, as against the ability to assess one's options in a clear-eyed manner.<sup>15</sup> As a society, we might

14. See Dan M. Kahan, *Trust, Collective Action, and Law*, 81 B.U. L. REV. 333, 334 (2001).

15. But perhaps excessive optimism is just as important today as it was in the environment of evolutionary adaptation. One might argue that those with a predisposition to believe that they will fare well in the future are, even today, more likely to succeed at modern tasks than those who do not have that optimism. If so, natural selection may continue to select for this excessively

wish that potential criminals would make astute calculations, not starry-eyed ones, about their chances to succeed in crime. But if excessive optimism is a trait for which most of us are hard wired, then it is not really feasible for us to turn that optimism on and off; we are over-optimistic *tout court*, not selectively.

Noticing that fact—that we may be hardwired to be excessively optimistic about almost everything, not just about some things—creates special problems for law and other methods of social regulation. Optimism about some things may be a good thing and, therefore, ought to be encouraged or, at the least, not discouraged. Thinking that one will succeed in one's employment may be an example. Optimism about other things may be a bad thing and, therefore, ought to be discouraged, as might be the case with excessive risk-taking behavior. But the law (and other forms of social regulation) may not be fine-grained enough to distinguish among the optimisms to be encouraged and those to be discouraged. Or, even if we could recognize the differences among the desirable and undesirable optimisms, we may not have the tools to regulate them appropriately.

In previous work, Owen has elaborated to great effect on the mismatch hypothesis; namely, that the cognitive abilities with which the process of natural selection has equipped us may have served humans well in ancient environments, but do not necessarily do so today.<sup>16</sup> He has made a second important point about this matter that should also help behavioral law and economics make advances: that the extent to which natural selection has hardwired some human behaviors will dictate, in large part, how difficult it will be for regulatory processes to induce non-instinctual behavior. Consider jealousy.<sup>17</sup> Human beings are apparently hardwired to be jealous of their sexual mates.<sup>18</sup> That is, the decision to be jealous or not is apparently beyond our rational control; it is an emotion that has evolved because it generally serves us well, precisely because it *is* beyond our rational control.<sup>19</sup> But jealousy can tragically lead to violence, and society is ill-served by outbreaks of violence. So there is a general social interest in limiting violence, specifically the violence that arises from sexual jealousy. In seeking to control jealousy-induced violence, the law must recognize that it is a powerful emotion, that it has its origins in natural selection, and that, because this emotion is well beyond rational control, regulating the adverse consequences of jealousy is going to require

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optimistic attitude.

16. See generally Jones, *supra* note 4, at 837.

17. See generally DAVID M. BUSS, *THE DANGEROUS PASSION: WHY JEALOUSY IS AS NECESSARY AS LOVE AND SEX* (2000).

18. *Id.* at 5-6.

19. See *id.* at 8.



extraordinary pressures or sanctions in order to counteract the hardwiring that disposes humans toward jealousy.

These two points—that we human beings may have the systematic cognitive imperfections on which behavioral law and economics lays such stress because those behaviors or imperfections have served humans well in their evolutionary past but are inapt today and that, therefore, trying to induce human beings to behave in ways contrary to those dictated by their evolution-induced psychology may require special pressures—could hardly be more important.

### C. *The Limitations of Evolutionary Psychology in Legal Explanations*

Owen has established the mismatch hypothesis and its implications.<sup>20</sup> He does not claim that the recognition of the evolutionary endowment of human psychology explains everything about the law, merely that it is an important and heretofore overlooked factor in explaining how the law should regulate human behavior.<sup>21</sup> In this section I want to suggest what tools may be of most use in addressing the legal issues raised by Owen's insights.

I begin with the obvious point—one to which Owen would readily assent: that we are at a very early stage in our understanding of the sources of human behavior. Evolutionary psychology and behavioral law and economics are new disciplines, and there is, obviously, much scholarship to be done in those fields.<sup>22</sup> Conclusions in those fields that we now take to be settled or nearly settled could change dramatically. Despite the strong sense that there is much of value to the law that will come from these fields, we must be cautious and hold our conclusions contingently.

Let me raise two particular cautions about the future of evolutionary psychology in legal analysis: one that I shall return to in the next section and another that is no more than an educated guess about the future direction of legal scholarship.

The first caution comes from my uncertainty about how to integrate evolutionary forces into the multiple sources of effect on human behavior. Evolution is one among many salient factors that determine human behavior. There is also a genetic influence, one that comes from the particular genes in one's family. There are cultural and environmental

20. See Jones, *supra* note 4.

21. Jones, *supra* note 1, at 833; see also the applications cited in note 3, *supra*.

22. As anecdotal evidence of these contentions, I offer the fact that there is no course on evolutionary psychology in any department of the University of Illinois at Urbana-Champaign, despite the fact (or because of the fact) that the Departments of Psychology and of Biology and other relevant departments are very highly regarded. There are very, very few courses in U.S. law schools on behavioral law and economics, although the material is now making its way into the standard law and economics course. See, e.g., COOTER & ULEN, *supra* note 11 (including Chapter 12, which treats briefly how behavioral law and economics might relate to criminal behavior).

forces.<sup>23</sup> There are changing tastes and preferences and fads and fancies. There are considerations of rational self-interest, as rational choice theory has always maintained. There are political considerations. There are group dynamics.<sup>24</sup> There are religious and spiritual motivations. We may perceive individual strands of this complex fabric of motivations, but we do not yet have a clear sense of the entire cloth. I am not, of course, saying that human behavior is simply too complicated to be studied systematically. Rather, I am saying that in light of these multiple determinants of human behavior and the early stage of our understanding of how these multiple determinants interact, we must derive our conclusions slowly and contingently.

The second caution has to do with the division of labor among various important tools for performing legal analysis. Although I believe that evolutionary psychology will grow in importance in the analysis of human behavior and of law, its impact will come only to the extent that it works in partnership with other important emerging legal-scholarship trends. My sense is that the division of justifications for legal regulations of human behavior among the various tools of which we now are aware is this: evolutionary psychology can identify the hard- and softwired elements of human behavior and tell us how strong the legal lever must be applied to those hardwirings in order to achieve socially desirable behavioral outcomes; in the event of softwired behaviors and in defining the ultimate behaviors that we desire, other disciplinary tools must be brought to bear. Specifically, I believe that the behavioral economic analysis of law, political philosophy, and pragmatic policy considerations—working with the information provided by evolutionary psychology—are the three most important guides to how law should address the legal issues raised by evolutionary psychology.

The behavioral economic analysis of law can help to identify problems of societal organization and functioning that can and cannot be solved by individual bargaining behavior. It can also provide standard categories of analysis for these problems, show what shortcomings of rationality are most likely to impede the proposed solutions, and fashion solutions for those categorical problems. For example, there are problems of collective action, the internalization of external costs and benefits, and the optimal provision of public goods. These are categories of interaction that must have existed from the beginning of human history. However, in small group settings they were probably dealt with by means of social conventions and norms. As the size of human aggregations increased, the

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23. I recognize that these may not be independent sources of behavior, but are co-determined by evolutionary processes.

24. For more thorough analyses of group dynamics, see Langevoort, *The Human Nature of Corporate Boards*, *supra* note 6; Langevoort, *Organized Illusions*, *supra* note 6; Sunstein, *Deliberative Trouble*, *supra* note 6.

organizing ability of social conventions and norms proved limited, and there was a need for alternative methods of governance—methods that went far beyond the informal or slow evolutionary development of social norms.

Political philosophy can provide guidance with two matters: governance generally and in solving distributional or equity issues that lie outside the domain of economic analysis. These matters, like those suggested by economic analysis, may have presented problems for human beings in the environment of evolutionary adaptation, but those problems were surely less vexing than they have become in modern, urban nation-states. Primitive tribes, for instance, probably did not experiment among alternative forms of governance. They used what was handed down to them and what was consistent with their circumstances. Nor is it likely that primitive tribes discussed matters of the just distribution of resources. For one, there was probably very little in the way of a disposable surplus in societies living on the edge of starvation and extinction. For another, most of the members of the tribe were probably related by birth and marriage so that matters of distribution shaded very quickly into matters of helping kin.<sup>25</sup>

Finally, pragmatic policy considerations will inform how societies implement legal and other regulatory methods to effectuate solutions to efficiency, governance, and distributional matters. Only a subset of the possible solutions to any policy issue will be feasible—if for no other reason than that those who would lose from a policy change will object, while those who benefit will champion the change.<sup>26</sup> There is an art and a skill to being able to discern which of the possible solutions is both the most likely to work and the one that can be enacted, and what may be safely delegated to regulation by informal social norms.<sup>27</sup>

25. See 1 W.D. HAMILTON, *NARROW ROADS OF GENE LAND* 338 (1996).

26. There is no better theoretical guide to the practical problems of policy change than MANCUR OLSON, *THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF GROUPS* (rev. ed. 1971). See also DEREK BOK, *THE TROUBLE WITH GOVERNMENT* (2001).

27. The recent debates over human cloning and stem-cell research might serve to illustrate this point. In 1997, President Clinton signed an Executive Order prohibiting federal funding of cloning research and commissioned the National Bioethics Advisory Commission (the Commission) to recommend a course of action. Christine Willgoos, *FDA Regulation: An Answer to the Questions of Human Cloning and Germline Gene Therapy*, 27 AM. J.L. & MED. 101, 114 (2001). The Commission recommended formal legislation to ban human cloning. REPORT AND RECOMMENDATIONS OF THE NATIONAL BIOETHICS COMMISSION (1997), available at <http://bioethics.gov/pubs/cloning.pdf>. For a summary of recent unsuccessful federal legislation, see Willgoos, *supra*, at 115-17. The current Congress seems closer to success. On July 31, 2001 the House of Representatives passed the Human Cloning Prohibition Act of 2001. H.R. 2505, 107th Cong. (2001).

For coverage of President George W. Bush's recent announcement regarding stem-cell research, see Katharine Q. Seelye, *The President's Decisions: The Overview; Bush Gives His Backing for Limited Research on Existing Stem Cells*, N.Y. TIMES, Aug. 10, 2001, at A1.

### III. NON-LAW

One of the central contentions of Owen's Article is that we can learn something important about the core values of the law by looking at the things that are *not* law.<sup>28</sup> And he proposes that frequently, but not exclusively, the things that are non-law are pointless, needless, toothless, and useless.<sup>29</sup> The purpose of this exercise is the suggestion that, over time, and perhaps through evolutionary processes, the matters that are left as law have the opposite characteristics—that is, the contents of the law have a point, are necessary, have some bite, and serve a vital purpose. Although Owen recognizes that this filter is not perfect, and although I join him in thinking that performing this filtering is a very valuable exercise, I also want to emphasize a reason that the filter may mislead us.

It is absolutely vital, I believe, for those who are analyzing law to recognize that law, in its various forms, is only one among several methods that societies use to order themselves. Standing somewhere between the individual and the panoply of legal authorities are family, tribe, region, and nation-state, all of which exercise some influence on individual and group behavior. In addition, there are the numerous formal and informal non-governmental civic organizations that command loyalty and exact degrees of behavioral obedience from us all. Included among these civic organizations are tribes, social clubs, choirs, on-line chat groups, workplace organizations, labor unions, sports team fan clubs, religious organizations, and the like.<sup>30</sup> Membership in these intermediate organizations is fluid, and individuals can belong to a host of these groups. As a result, there is a web of overlapping loyalties to these groups that provide multiple connections among individuals and families, and that therefore serve to bind a society together.<sup>31</sup>

Similarly, unwritten social norms (established, disseminated, and enforced through the range of groups noted in the previous paragraph) play an important role in social cohesion.<sup>32</sup> As Robert Ellickson and others have

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28. Jones, *supra* note 1, at 845-47.

29. *Id.* at 851-53.

30. Robert Putnam has famously characterized these intermediate organizations as providing "social capital." In two important recent works he has stressed how significant these intermediate civic organizations can be in accounting for social cohesion and the success of governmental organizations, ROBERT D. PUTNAM, *MAKING DEMOCRACY WORK: CIVIL TRADITIONS IN MODERN ITALY* 163-85 (1993) (arguing that those Italian hill towns with choral societies or their like had local governments that worked well as a result of the presence of the choral societies), and how the absence of social capital can lead to societal problems, see ROBERT D. PUTNAM, *BOWLING ALONE* 287-95 (2000).

31. When human beings lived in much smaller groups, perhaps in the environment of evolutionary adaptation, the need for social capital as a method of cohesion was surely less than it has become in modern urban society.

32. As is well known, law and economics has turned a great deal of attention lately to the

shown, many people pay far closer attention to the norms of neighborliness in choosing their behavior than they do to the relevant laws. Moreover, Ellickson and Lisa Bernstein, among others, have suggested that people resort to law only when the relationships that underlie social norms have irretrievably broken down.<sup>33</sup> Law is, in their view, a method of solving an endgame problem, not a method of preserving a relationship. The mirror-image of that observation is that compliance with social norms is the default method of human interaction.

These thoughts suggest that the connection between law and non-law is more complex than Owen implies. Rather than non-law containing pointless, useless, toothless, and needless categories, non-law—contemplated to include social norms and intermediate civic organizations—can constitute extremely important elements of society. Moreover, there is, no doubt, a complicated and important connection among law, social norms, intermediate civic organizations, and other social structures in establishing a well-functioning human society. What we do not yet understand is the appropriate division of responsibility and of competency among these forms of social organization. For instance, we do not know what issues to leave to social norms and what to reserve for formal legal structures. Nor do we fully understand when some of these methods work as complements and when they work as substitutes, which are in tension against one another and which serve to support one another. And it is not unlikely that the degree of complementarity and substitutability among law and other methods of social ordering has varied over the course of human history in systematic ways and may vary across human cultures, with some placing greater reliance on, say, the family and kin-group and others putting greater reliance on impersonal legal controls.

In line with Owen's general themes in the Dunwody Lecture, I wonder the extent to which a study of the human evolutionary past might shed light on this matter of dividing responsibility among law, social norms, family, government, intermediate civic organizations, and the like. For instance, we may be constructed so as to respond far more effectively to small-group governance situations than to large, impersonal ones.<sup>34</sup> As a result, a wise governance structure would seek to lay greater stress on

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issue of the relationship between law and social norms. See ROBERT C. ELICKSON, *ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES* 123-36 (1991); ERIC POSNER, *LAW AND SOCIAL NORMS* (2000); see also Richard H. McAdams, *Signaling Discount Rates: Law, Norms, and Economic Methodology*, 110 YALE L.J. 625 (2001) (book review); Richard H. McAdams, *The Origin, Development, and Regulation of Norms*, 96 MICH. L. REV. 338 (1997).

33. ELICKSON, *supra* note 32, at 123-36; Lisa Bernstein, *Merchant Law in a Merchant Court: Rethinking the Code's Search for Immanent Business Norms*, 144 U. PA. L. REV. 1765, 1796-1802 (1996); Lisa Bernstein, *Opting Out of the Legal System: Extralegal Contractual Relations in the Diamond Industry*, 21 J. LEGAL STUD. 115, 132-45 (1992).

34. See MALCOLM GLADWELL, *THE TIPPING POINT: HOW LITTLE THINGS CAN MAKE A BIG DIFFERENCE* (2000).

controlling human populations by means of small-group structures than by remote and impersonal rules and regulations. This is in line with my observation above that human history exhibits a trend away from small-group living to residence in increasingly large aggregations. Perhaps a better way of putting this is to say that one of the challenges of modern society is to figure out how human beings, who are comfortable with and designed for prospering in small-group settings, are to be governed when they choose to live together in large numbers, such as those of modern metropolises.

#### IV. BIOLEGAL HISTORY AND COMPARATIVE LAW

Let us assume that there is an important connection between evolutionary processes and the human brain and mind. And because the brain and mind crucially determine human behavior, there is, therefore, a connection between evolution and human behavior. And finally, because law seeks to regulate human behavior, there is a connection between evolution and law. One of the significant new suggestions of the Dunwody Distinguished Lecture is that we might be able to detect the direct connection between evolution and law by looking at what Owen calls "biolegal history."

I have implicitly seconded this suggestion in the previous section of this Article in my stressing the importance of discovering both how law fits with the many other devices for achieving social cohesion and how those relationships may have changed over time. Nonetheless, I am skeptical that we shall be able to learn much from biolegal history. In brief, the argument is that there are too many paths of influence among brain, mind, and law to be hopeful of statistically isolating primary causal relationships. However, in the second section below, I suggest comparative law as an alternative source of possible testable hypotheses about the biolegal history hypothesis.

##### *A. The Connections Among Brain, Mind, Environment, and Behavior*

Let me assume that the brain and the mind are closely related but distinct items. This assumption allows me to deal with historic possibilities in which the brain changed but the mind did not, or they both changed together, or the brain remained the same but the mind changed. Those who relate evolutionary psychology and human behavior typically are talking about the connection between the mind and behavior in the following way: first, the environment changes, creating a change in the return to certain behaviors, and then, those changed behaviors may, through natural selection, become hardwired as a part of our brains and minds.

I wonder if the connection among brain, mind, environment, and behavior might not be more complex than this. In fact, let me consider four

possibilities about the connections that will serve to illustrate, I hope, how very difficult it may be, particularly given the paucity of the historical record, to disentangle the causes from the consequences. In each instance there will be a change in behavior; what will be difficult to discern is what caused that change in behavior.

One possibility is that the initiating change was a change in brain structure and ability, with changes in the human mind and psychology coming, if at all, afterward. For instance, suppose that through chance variation, the storage capacity of the human brain increased. We might predict a change in human behavior simply because the increased storage capacity of the average human brain would allow people to remember more things, such as the (oral) history of their group or the location of favorable hunting grounds. Or the increased capacity might have led to greater reasoning power, with the result that those with the larger brains could out-think and, therefore, defeat their rivals for hunting territory. The initiating change here was one in brain capacity with a subsequent change in behavior. All of this is possible without there being a change in mind or psychology.

Now imagine a second possibility—one in which there is an initial change in brain structure or ability with a consequent change in mind and psychology, which in turn causes a change in behavior. For instance, suppose that, through chance variation, the ability of the human brain to process visual images from a great distance increased. That change in the structure or ability of the brain might have increased the ability of the group with this heightened visual acuity to track and kill game. And that may have altered the optimal size of a tribe's hunting territory. This first-order change might then have altered the psychology of human tribes in deciding what territories they might appropriately control.

A third possibility is that the brain's structure or its abilities remained unchanged, but that the mind or psychology was altered by changed circumstances, resulting in changed behavior. For instance, suppose that some calamity in the environment of evolutionary adaptation led to the untimely death of a significant fraction of females of a group. There might have been an increased competition among males for the now-reduced number of females, and, as a consequence, there may have been an increase in the amount of anger and jealousy affecting the group. If the results of those increased emotions was not good and if the group recognized that anger and jealousy were proving destructive to the group's ability to prosper, then the psychology and then the behavior of the group might have altered so as to adapt to the new circumstances in a less destructive manner. For example, the group may have shifted to believing that polyandry was a good thing and have altered its customs or formal rules so as to allow women to have multiple husbands simultaneously.

Finally, some behavioral changes may have occurred without any change in brain or mind. Perhaps the environment of a group changed in such a manner as to suggest to members of the group that their behavior ought to change to take advantage of the new circumstances. Or perhaps the environment did not change either; perhaps some enterprising person, whom Cass Sunstein might characterize as a "norm entrepreneur," simply thought of a new way of doing things and demonstrated convincingly to her colleagues that the behavioral change made sense.

All four of these changes could have occurred at various times in human history, and any of them could have had important consequences for the organization of human social life, including law. I am very skeptical that there is much in the archeological and historical record that will allow us to differentiate among these very different sources of behavioral (and related legal) change in human societies. Even if we were to find records of changes in behavior in primitive groups, we might not be able to piece together evidence to tell us whether this behavioral change was due to a change in the group's brain sizes, minds, environment, or something else. Trying to disentangle these various changes in human evolutionary history is a formidable task, to say the least.

### B. *Comparative Law and Biolegal History*

I want to conclude these remarks by drawing out two implications of Owen's concern for biolegal history for the study of comparative law. Recall that Owen writes, "[A] fair extrapolation from existing scholarship on contemporary legal systems suggests that the body of law a culture displays is typically considered to reflect a complex amalgam of culture-specific norms, culture-specific religions, culture-specific morals, culture-specific politics, and general economic efficiencies."<sup>35</sup>

I could not agree more with this characterization of comparative law. There is, of course, a functionalist approach to that subject; an approach that holds that, whatever the differences in culture, every legal system is trying to solve the same basic problems or has the same functional goal (such as establishing an orderly method of defining interests in property) and should, therefore, have functional equivalents—no matter how different-seeming the comparable areas of law may be.

An implication of the evolutionary psychology view of human behavior is that there ought to be some regularities in human behavior across cultural boundaries because we all stem from roughly the same environment of evolutionary adaptation. Human beings, regardless of their culture, share, among other things, the same reasoning powers, the same sex drive, and the emotions of anger, jealousy, and the like. Every society must somehow balance the need for social harmony against the pressures

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35. Jones, *supra* note 1, at 847.



that the sex drive and some of the emotions create for disharmony. And perhaps one promising line of inquiry in comparative law is to investigate how different legal systems (and other methods of social control) deal with the issues created by our common evolutionary psychology.

Second, I wonder if comparative law could provide the body of data that Owen hoped that biolegal history would provide (and of which I was so skeptical in the previous section). Different legal systems have arisen and evolved with different mixtures of law, social convention and norms, family structures, intermediate civic organizations, and so on. If we assume, as seems reasonable as a first approximation, that the human beings in these different (recent) legal systems have much the same evolutionary psychology, then perhaps we can isolate some significant environmental factors that help to determine the structure and relative importance of law. Alternatively, if one could establish that there is a different evolutionary psychology in different cultures, then by studying the similarities and differences in the legal systems and other methods of social ordering among those cultures, one might greatly advance the cause of showing the relationship among evolution, law, and human behavior.

## V. CONCLUSION

As I hope is evident, I am a great fan of Owen's general approach and of the specific issues raised in this lecture. He has fully persuaded me that the law must take account of the fact that human beings are greatly influenced by the processes of natural selection and that some of our behavior is deeply hardwired by evolution. The ability of law, social norms, and other methods of control to achieve social order by influencing these deeply ingrained behaviors may be limited.

The powers of human beings to think, to create, to love, and to speculate are wondrous. And yet it would be a mistake for us to think that these magnificent powers enable us to become anything that we desire to be or to live in any manner we desire or to order our collective affairs according to more logically coherent theories. We are importantly and vitally determined not just by our power to reason and communicate, but also by the fact that we have an evolutionary past that is still with us. Our reasoning ability, profound though it be, must not lose sight of that ineluctable fact.