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A Safe Culture for Neuroscience

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A SAFE CULTURE FOR NEUROSCIENCE

BRUCE WALLER*

ABSTRACT

When examining the future impact of neuroscience on the law, the first step requires narrowing the scope of the inquiry: advances in neuroscience are exciting, but the beneficial or harmful effects of those advances will depend on the specific culture in which they occur. In some cultures—such as in Norway or Sweden—integrating advances in neuroscience into the criminal justice system is likely to enhance understanding and improve the treatment of offenders and potential offenders. In the neoliberal culture of the United States, advances are more likely to exacerbate the profound wrongs of the criminal justice system rather than ameliorate them. The important question for neoliberal cultures is whether advances in neuroscience might contribute to the reform of those cultures. While neuroscience can contribute to that goal, there is a danger that neuroscience advances might encourage the radical individualist orientation of neoliberalism and revive a “nothing works” attitude toward rehabilitation. The benefits of neuroscience are more likely to emerge when the worst elements of neoliberal culture have been reformed.

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INTRODUCTION

Neuroscience research is fascinating, promising, and often enlightening. We are privileged to observe the research in its precocious infancy, look forward to its adolescent achievements, and dream of its amazing maturity. We are only beginning to consider how neuroscientific research might change our world. Descartes made the mind a radically different substance from the material body to protect our godlike minds from becoming objects of scientific determinism.¹ Not many years ago, the Nobel laureate of neuroscientific research, John Eccles, insisted on preserving the radical dualistic distinction between brain and mind in order to keep our cognitive processes free of physical forces.² Powerful vestiges of mind/body dualism flourish in popular belief³ and subtly influence scientists,⁴ philosophers,⁵ and legal thought⁶ (including intellectual property,⁷ tort,⁸ property,⁹ and criminal¹⁰ law). Neuroscientific research seems poised to demolish the last barrier between mind

1. See John Cottingham, *Translator's Preface* to RENÉ DESCARTES, *Meditations on First Philosophy*, in 2 THE PHILOSOPHICAL WRITINGS OF DESCARTES 1 (John Cottingham, Robert Stoothoff & Dugald Murdoch trans., 1984).

2. See JOHN C. ECCLES, *EVOLUTION OF THE BRAIN: CREATION OF THE SELF* 178 (1989).

3. PETER A. ALCES, *THE MORAL CONFLICT OF LAW AND NEUROSCIENCE* 18-19 (2018) (noting that the dualism of folk psychology holds “that there is something other than the brain that acts, that a mind or the ‘human being’ or ‘the person’ is positioned to exert control over what the brain dictates”).

4. See Athena Demertzi et al., *Dualism Persists in the Science of Mind*, 1157 ANNALS N.Y. ACAD. SCIS. 1, 8 (2009) (revealing the prevalence of dualistic attitudes that emphasize separateness of mind and body).

5. See, e.g., CHRISTIAN LIST, *WHY FREE WILL IS REAL* 5-9 (2019) (basing claim for the reality of free will on a strong distinction between the physical and the psychological).

6. See, e.g., Dov Fox & Alex Stein, *Dualism and Doctrine*, 90 IND. L.J. 975, 980-81 (2015) (examining mind-body dualism and “its entrenchment in the doctrines of harm, compulsion, and intentionality”).

7. See, e.g., Dan L. Burk, *Feminism and Dualism in Intellectual Property*, 15 AM. U. J. GENDER SOC. POL'Y & L. 183, 185-91 (2007) (noting dualist assumptions in copyright and patent law).

8. See, e.g., Nancy Levit, *Ethereal Torts*, 61 GEO. WASH. L. REV. 136, 191 (1992) (criticizing dualism in torts).

9. See, e.g., Peter Halewood, *Law's Bodies: Disembodiment and the Structure of Liberal Property Rights*, 81 IOWA L. REV. 1331, 1338-40, 1347-49 (1996) (analyzing dualism in property law).

10. See, e.g., Francis X. Shen, *Mind, Body, and the Criminal Law*, 97 MINN. L. REV. 2036, 2047-55 (2013) (identifying dualism in determinations of criminal harm).

and brain,¹¹ and it is hardly surprising that this research holds amazing promise for some while terrifying others.

Neuroscientists have made remarkable discoveries about the operations of our brains, but there is still very limited understanding of how the brain interacts with the larger nervous system, how various activities of the brain work together, why the general results have noteworthy individual exceptions, and how the nervous system operates in various environments and under differing stimuli.¹² Still, with such an exciting area of research—a research program that even in its infancy has challenged many of our basic ideas and beliefs—it is worthwhile to explore the potential impact of neuroscience research on our lives and our institutions. Of those institutions, none are more important than our legal and criminal justice systems.

There are two distinctly different approaches to considering the influence of neuroscience on our justice system. One approach locks the basic assumptions and principles of our legal system in place and explores ways that neuroscience might influence and improve the operations of that given system.¹³ The other approach examines the possibility of neuroscientific research replacing our current criminal justice system with something radically different.¹⁴

When examining the implications of neuroscience for change *within* a system, it is essential to specify the nature of the given cultural system. Some may claim that scientists should focus on the advancement of science, not on how its innovations will be used. But that is disingenuous: we know that when North Korea obtains facial recognition software, it will not be used to make iPhones more convenient. In like manner, neuroscience advances and

11. A. DAVID REDISH, *THE MIND WITHIN THE BRAIN: HOW WE MAKE DECISIONS AND HOW THOSE DECISIONS GO WRONG* 159 (2013) (“[T]he theory that mind and brain are separable is untenable, and the available data suggest instead that they are the same thing.”).

12. See 2 PRESIDENTIAL COMM’N FOR THE STUDY OF BIOETHICAL ISSUES, *GRAY MATTERS: TOPICS AT THE INTERSECTION OF NEUROSCIENCE, ETHICS, AND SOCIETY* 86-89 (2015).

13. See Joshua W. Buckholtz & David L. Faigman, *Promises, Promises for Neuroscience and Law*, 24 *CURRENT BIOLOGY* R861, R866 (2014).

14. See Joshua Greene & Jonathan Cohen, *For the Law, Neuroscience Changes Nothing and Everything*, 359 *PHIL. TRANSACTIONS ROYAL SOC’Y B* 1775, 1775 (2004); Gregg D. Caruso & Derk Pereboom, *A Non-Punitive Alternative to Retributive Punishment*, in *THE ROUTLEDGE HANDBOOK OF THE PHILOSOPHY OF SCIENCE AND PUNISHMENT* 355-63 (Farah Focquaert et al. eds., 2021).

neurointervention are not good or bad absolutely, but relative to the culture. Such advances might be quite beneficial in Norway but profoundly harmful in the United States and the United Kingdom.

The focus here will be on U.S. culture and the benefits or detriments of neuroscience in that culture. U.S. culture is profoundly influential, and among Western cultures the United States marks one extreme.¹⁵ The U.S. implications for neuroscience are very different from the cultural implications in places like Sweden, Norway, or Belgium.¹⁶ What are the implications of applying neuroscientific advances *within* the existing U.S. judicial system? One of the most debated questions concerns using neuroscientific brain analyses to predict violent antisocial behavior.¹⁷ There may be advantages to the use of such processes: if we could predict at a relatively early age who is likely to become a violent criminal, then we could kindly intervene in such a way as to prevent criminal violence.¹⁸ That would not only reduce criminal violence against innocent victims, but also would rescue potential criminals from lives of violent crime, imprisonment, and misery.¹⁹ Those are worthwhile aspirations, and most who champion such aspirations are sincerely devoted to reducing violence and improving lives. In some cultures, such programs might be genuinely beneficial—not in the United States.

15. See Farah Focquaert et al., *Introduction* to THE ROUTLEDGE HANDBOOK OF THE PHILOSOPHY OF SCIENCE AND PUNISHMENT 1 (Farah Focquaert et al. eds., 2021).

16. See *id.*

17. Russell A. Poldrack et al., *Predicting Violent Behavior: What Can Neuroscience Add?*, 22 TRENDS COGNITIVE SCIS. 111, 111 (2018) (“The ability to accurately predict violence and other forms of serious antisocial behavior would provide important societal benefits, and there is substantial enthusiasm for the potential predictive accuracy of neuroimaging techniques.”).

18. Jennifer Brooks-Crozier, Note, *The Nature and Nurture of Violence: Early Intervention Services for the Families of MAOA-Low Children as a Means to Reduce Violent Crime and the Costs of Violent Crime*, 44 CONN. L. REV. 531, 537 (2011).

19. See Thomas Nadelhoffer et al., *Neuroprediction, Violence, and the Law: Setting the Stage*, 5 NEUROETHICS 67, 68 (2012).

I. EXISTING BARRIERS TO NEUROSCIENTIFIC ADVANCEMENT

A. *Preventive Incarceration*

Suppose that neuroscientists could predict, with impressive accuracy, who is likely to commit violent criminal acts. Neuroscientists cannot currently make such predictions, and such predictive success is unlikely in the near future.²⁰ But neuroscience is advancing rapidly, and it is a prospect that some have embraced. We might discover problems early, find ways of correcting or ameliorating them, improve the lives of potential violent criminals, and avoid the suffering of their victims. And we would carefully regulate such testing and intervention to prevent abuse. However, in the United States, we would *never* allow imprisoning people based on a *prediction* of wrongful behavior; such measures can only be taken in *response* to proven criminal acts, any punitive measures must be proportionate to the wrong that has actually been committed, and any preventive interventions require the free and informed consent of the subject.

That is a charming American myth, but equal in plausibility to the claim that the United States is a land of “liberty and justice for all.” The sad, but obvious fact is that the United States already practices mass imprisonment based on the possibility of *future* criminal behavior. For instance, the draconian laws against sex offenders explicitly provide for continuing punitive “preventive” imprisonment *after* completion of the criminal sentence.²¹ This continued “preventive” imprisonment may be called “regulatory” rather than punitive, but the prisoner often remains in the same prison cell under the same conditions.²² There are currently

20. See Olivia Choy, *Biosocial Risk Factors for Offending*, in THE ROUTLEDGE HANDBOOK OF THE PHILOSOPHY OF SCIENCE AND PUNISHMENT, *supra* note 14, at 215, 216-17; Corey H. Allen & Eyal Aharoni, *Current Trends in Cognitive Neuroscience and Criminal Punishment*, in THE ROUTLEDGE HANDBOOK OF THE PHILOSOPHY OF SCIENCE AND PUNISHMENT, *supra* note 14, at 250-51.

21. See Corey Rayburn Yung, *Sex Offender Exceptionalism and Preventive Detention*, 101 J. CRIM. L. & CRIMINOLOGY 969, 970-71 (2011).

22. See BRUCE N. WALLER, THE INJUSTICE OF PUNISHMENT 155 (2018); see also Vincent Chiao, *Punishment and Permissibility in the Criminal Law*, 32 LAW & PHIL. 729, 730-31 (2013).

thousands of people who have been charged but *not convicted* of any crime who are incarcerated because they lack the funds to post a cash bail; or they are held without bail—out of fear that they might commit a future antisocial act, such as failing to appear for a scheduled court date.²³ The poor are held in jail, while the affluent post bail and proceed with their comfortable lives.²⁴ On a typical day in 2014, there were more than ten thousand people in New Jersey jails who had not been found guilty of anything.²⁵ They were awaiting trial, and their average wait was ten months.²⁶ Forty percent had the option of posting bail but lacked the funds.²⁷

As egregious as this practice is, it is not the largest or most obvious form of “preventive imprisonment.” A few years ago—in a law and order frenzy—the United States adopted a policy that continues to this day: mass “incapacitation”²⁸ of those deemed *likely* to commit future crimes.²⁹ A young person shoplifts some expensive sunglasses (first offense), resists arrest (second offense), and when searched is found to possess a small amount of cocaine (third offense)—three strikes, and life imprisonment looms.³⁰ No one pretends that life

23. See Justine Olderman, *Pre-Trial Detention and the Supplanting of Our Adversarial System: A Case for Abolition*, in THE ROUTLEDGE HANDBOOK OF THE PHILOSOPHY OF SCIENCE AND PUNISHMENT, *supra* note 14, at 344.

24. See *id.*

25. See *New Jersey State Commission of Investigation Releases Damning Report on Commercial Bail Industry Practices*, DRUG POL'Y ALL. (May 20, 2014), <https://drugpolicy.org/news/2014/05/new-jersey-state-commission-investigation-releases-damning-report-commercial-bail-indus> [<https://perma.cc/PD4D-LVLX>].

26. See *id.*

27. *Id.* (“Nearly 75 percent of the 15,000 individuals in New Jersey jails are there pretrial, meaning they have not yet been convicted of a crime or found guilty by a jury. Nearly forty percent of the total population is there solely because they cannot afford to pay bail and 12 percent have a bail amount of \$2,500 or less. The average length of incarceration for pretrial inmates is more than ten months.”).

28. JAMES Q. WILSON, THINKING ABOUT CRIME 145-46 (2d rev. ed. 1983) (“Incapacitation, on the other hand, works by definition: its effects result from the physical restraint placed upon the offender and not from his subjective state.”).

29. See Andrew von Hirsch, *Incapacitation*, in PRINCIPLED SENTENCING: READINGS ON THEORY AND POLICY 79-80 (Andrew von Hirsch et al. eds., 3d ed. 2009) (noting selective incapacitation was endorsed by James Wilson and others); Andrew D. Leipold, *Recidivism, Incapacitation, and Criminal Sentencing Policy*, 3 UNIV. ST. THOMAS L.J. 536, 536-43 (2006).

30. See Thomas B. Marvell & Carlisle E. Moody, *The Lethal Effects of Three-Strikes Laws*, 30 J. LEGAL STUD. 89, 89-106 (2001); Elsa Chen, *Three-Strikes Legislation*, in AFRICAN AMERICANS AND CRIMINAL JUSTICE: AN ENCYCLOPEDIA 551-54 (Delores D. Jones-Brown et al. eds., 2014).

imprisonment is a “proportionate” or “just” sentence for three minor felonies, but the goal of the program was not—and is not—justice for past offenses; rather, it is an excuse to “incapacitate repeat offenders” with long prison sentences on the assumption that repeat offenders are likely to commit *future* offenses.³¹ The incapacitation policy has imprisoned tens of thousands on the basis of a crude *prediction* of future offenses; this is a policy that imprisons many people who would have never committed a future criminal act but instead would have matured, lived a crime-free life, and settled into a job, as well as relationship and family obligations.³² But neither the accuracy of the predictions nor the justice of the process was at issue. “Selective incapacitation” is half right: it certainly incapacitated many people, families, and communities, but it was far from selective.³³ A culture that embraces “preventive incarceration” on flimsy predictive grounds would be unlikely to resist the siren song of “preventive detention” based on impressive neuroscientific screening techniques.

Currently employed methods of “selective incapacitation” are not very careful in their selection processes, especially when those selected are economically deprived persons of color.³⁴ Still, such “selective incapacitation” measures do require an initial felony conviction.³⁵ Neuroscience-based “preventive” measures would not meet that standard. It might be supposed that requiring a felony conviction would provide a safeguard against such measures—a vain hope. Requiring a felony conviction provides little protection because protection against unjust felony convictions is anemic at best; not only are the innocent routinely convicted of crimes they did not commit,³⁶ but that fact is well-known in the American culture

31. See *Ewing v. California*, 538 U.S. 11, 25 (2003) (approving incapacitation for the purpose of crime prevention, requiring no empirical evidence of its effectiveness for that purpose).

32. See Leipold, *supra* note 29, at 543-44, 547-48.

33. See *id.* at 536-38.

34. See Bernard E. Harcourt, *Risk as a Proxy for Race: The Dangers of Risk Assessment*, 27 FED. SENT'G REP. 237, 237 (2015).

35. See Leipold, *supra* note 29, at 541-42.

36. Samuel R. Gross et al., *Government Misconduct and Convicting the Innocent*, NAT'L REGISTRY OF EXONERATIONS iii (2020), https://www.law.umich.edu/special/exoneration/Documents/Government_Misconduct_and_Convicting_the_Innocent.pdf [<https://perma.cc/GA2G-KVXW>] (“Official misconduct contributed to the false convictions of 54% of defendants who

and seemingly causes little concern.³⁷ To the contrary, measures that might reduce the number of false convictions are actively opposed as being “soft on crime.”³⁸ And the enormous profits made by those supplying the massive prison system—and especially by the notorious “private prison” industry—provide a powerful incentive to pack the prisons, whether the “clients” are guilty or innocent.³⁹

B. Faulty Investigative Practices

Further, forensic science in the United States is deeply flawed. False forensic evidence has been found in city crime labs in Chicago, Cleveland, Detroit, Houston, Oklahoma City, Omaha, San Francisco, and Washington; state crime labs in California, Illinois, Maryland, Mississippi, North Carolina, Virginia, and West Virginia; the FBI crime lab; and the crime lab of the U.S. Army.⁴⁰ These are only the most horrific cases that could not be covered up—likely only the tip of a massive fraudulent forensic iceberg. This is hardly surprising. Forensic labs are part of the police force, and those working in the labs often see their role as supporting the efforts of the police and the prosecutors to obtain a conviction.⁴¹ An obvious improvement, often recommended, is that the labs be made independent of the police.⁴² That recommendation is consistently

were later exonerated. In general, the rate of misconduct is higher in more severe crimes.”).

37. See Robert J. Norris & Kevin J. Mullinix, *Framing Innocence: An Experimental Test of the Effects of Wrongful Convictions on Public Opinion*, 16 J. EXPERIMENTAL CRIMINOLOGY 311, 312 (2020).

38. See Michael Vitiello, *Three Strikes Laws: A Real or Imagined Deterrent to Crime?*, 29 HUM. RTS. 3, 5 (2002).

39. Laura I. Appleman, *Cashing in on Convicts: Privatization, Punishment, and the People*, 2018 UTAH L. REV. 579, 583 (“Total revenues for private corrections are over \$3.3 billion per year, and private prison executives at the leading companies rake in enormous compensation packages, in some cases totaling millions of dollars. Profits are ripe for the taking when it comes to privatizing punishment.” (footnotes omitted)).

40. Radley Balko, *Private Crime Labs Could Prevent Errors, Analyst Bias: Report*, HUFFINGTON POST (June 14, 2011, 5:49 PM), https://www.huffpost.com/entry/the-case-for-private-crime-labs_n_876963 [<https://perma.cc/W5QF-Q525>].

41. See *id.*

42. Radley Balko, *How Do We Improve Forensics?*, WASH. POST (Aug. 26, 2019), <https://www.washingtonpost.com/opinions/2019/08/26/how-do-we-improve-forensics/> [<https://perma.cc/D8XM-HGRZ>] (quoting Barbara A. Spellman, University of Virginia School of Law: “Get the forensics lab out from under the control of the police/prosecutor’s office. And move it

rejected; the police and district attorneys prefer forensic experts who are “on their side” rather than independent, and challenging those who “fight crime” is not politically expedient in a powerfully retributive culture.⁴³

In addition to biased and outright fraudulent “evidence,” U.S. crime labs often employ investigative techniques with no scientific validity.⁴⁴ For years legislation has been proposed to correct the problems, but no bill has ever come close to passing.⁴⁵ Even when the forensic errors and wrongful convictions are discovered, often little or no effort is made to free those who are wrongly incarcerated. *The Washington Post* reported that in the District of Columbia, “Justice Department officials had known for years that flawed forensic testimony and false matches might have led to the convictions of hundreds of potentially innocent people,” but the Justice Department did not pursue a thorough investigation, and “[i]n many cases that the agency did review and found problems with, prosecutors never notified defendants or their attorneys of the issues uncovered.”⁴⁶

The problem of flawed forensic “evidence” is exacerbated by the fact that prosecutors often knowingly present such evidence in their efforts to “win” a conviction at any cost. As Bennett Gershman points out, “[d]ocumented cases of open and notorious misconduct by forensic laboratories and of rogue experts giving fraudulent testimony strongly suggest that many prosecutors are fully aware that the laboratory and the expert have been engaging in a long-standing practice and pattern of misconduct.”⁴⁷ Not only is flawed forensic “evidence” presented as legitimate, but prosecutors sometimes withhold evidence (in violation of discovery and disclosure rights) that

physically away.”).

43. *See id.*

44. *See* NAT’L ACAD. OF SCI., NAT’L RSCH. COUNCIL, STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD xix-xx, 4 (2009).

45. *See* Eric Maloney, Note, *Two More Problems and Too Little Money: Can Congress Truly Reform Forensic Science?*, 14 MINN. J.L. SCI. & TECH. 923, 924 (2013).

46. Spenser S. Hsu, *Santae Tribble Cleared in 1978 Murder Based on DNA Hair Test*, WASH. POST (Dec. 14, 2012), https://www.washingtonpost.com/local/crime/dc-judge-exonerates-santae-tribble-of-1978-murder-based-on-dna-hair-test/2012/12/14/da71ce00-d02c-11e1-b630-190a983a2e0d_story.html [<https://perma.cc/XG96-HLJG>].

47. Bennett J. Gershman, *Misuse of Scientific Evidence by Prosecutors*, 28 OKLA. CITY U. L. REV. 17, 26-27 (2003).

would support the innocence of the accused.⁴⁸ Gershman notes a 1999 study reporting that “convictions in 381 homicide cases nationwide [have been] reversed because prosecutors concealed evidence of defendants’ innocence or knowingly presented false evidence.”⁴⁹ In the current U.S. culture, adding another forensic device—such as neurologically based evidence concerning “truth-telling”—will likely yield greater harm than benefit.⁵⁰

C. Jailhouse Informants

While the United States is almost unique in its system of cash bail, and brazen concerning its reliance on flawed forensic testimony, there is a still more obvious and egregious marker of the American contempt for preventing unjust convictions: the widespread use of jailhouse informants.⁵¹ A jailhouse informant who is in jail awaiting trial or sentencing, or is currently serving a criminal sentence, makes contact with the district attorney’s office and offers to testify; the jailed suspect in another case confessed or bragged that he committed the crime with which he is charged, and if the prosecutor can do something for the informant—drop or reduce the charges, ask the judge for sentencing leniency, or facilitate early release or transfer to a halfway house—then the informant will bolster the prosecutor’s case with polished, damning testimony.⁵² One practiced jailhouse informant heard so many “confessions” that he was nicknamed “The Monsignor.”⁵³ Experiences with jailhouse informants in Canada and the United States mark a stark cultural contrast.

48. See *id.* at 40 & n.145.

49. *Id.*

50. See Adrianna C. Jenkins et al., *Cognitive Neuroscience of Honesty and Deception: A Signaling Framework*, 11 CURRENT OP. BEHAV. SCIS. 130, 131 (2016).

51. See *Informing Injustice: The Disturbing Use of Jailhouse Informants*, INNOCENCE PROJECT (Mar. 6, 2019), <https://innocenceproject.org/informing-injustice/> [<https://perma.cc/QSM2-D8Q4>] (“Jailhouse informant testimony is one of the leading contributing factors of wrongful convictions nationally, playing a role in nearly one in five of the 367 DNA-based exonerations cases.”).

52. See *id.*

53. Will Bunch, *Walter Ograd’s 22-Year Fight to Escape Death Row Gains Hope from Krasner, Documentary*, PHILA. INQUIRER (Apr. 5, 2018), https://www.inquirer.com/philly/columnists/will_bunch/walter-ogrod-death-row-stories-hln-larry-krasner-dna-testing-philadelphia-20180405.html [<https://perma.cc/3H59-QNUQ>].

In Canada, Thomas Sophonow spent several years in prison following his wrongful conviction.⁵⁴ When later evidence proved his innocence, public and political outrage prompted a major inquiry into this miscarriage of justice.⁵⁵ The inquiry revealed that an important part of Sophonow's trial was the perjured testimony of two jailhouse informants,⁵⁶ and ultimately the inquiry resulted in a Canadian virtual ban on jailhouse informants.⁵⁷ In the United States, there have been dozens of cases—several involving death row inmates and many others involving innocent people who spent years in prison—in which DNA evidence has established the innocence of persons wrongfully convicted, and many of those cases included perjured testimony of a jailhouse informant—perjured testimony purchased with prosecutorial benefits, such as reduced sentences and dropped charges.⁵⁸ But as perjured jailhouse informant testimony continues unchecked, innocent people are convicted by those lies, and—although there have been many media reports of innocent persons imprisoned for years and even decades—there is little public outcry against jailhouse informants and the prosecutors who purchase their lies with “get-out-of-jail-free” promises.⁵⁹

The nature and frequency of this use of perjured testimony is well known. As Brandon L. Garrett notes, “[i]nformants who are already

54. Richard J. Wolson & Aaron M. London, *The Structure, Operation, and Impact of Wrongful Conviction Inquiries: The Sophonow Inquiry as an Example of the Canadian Experience*, 52 *DRAKE L. REV.* 677, 681-83 (2004).

55. *Id.* at 683-84.

56. *Id.* at 682-83.

57. In Manitoba, the recommendation of The Inquiry Regarding Thomas Sophonow was: “As a general rule, jailhouse informants should be prohibited from testifying.” MANITOBA JUSTICE, THE INQUIRY REGARDING THOMAS SOPHONOW (July 7, 2000), <https://digitalcollection.gov.mb.ca/awweb/pdfopener?smd=1&did=12713&md=1> [<https://perma.cc/FM2M-U9ZE>]. This was also the policy adopted in the policy manuals and directives of the Attorney Generals of Ontario and Manitoba. See MANITOBA DEP'T OF JUST. PROSECUTIONS, POLICY DIRECTIVE GUIDELINE NO. 2:INF:1 (2001); ONTARIO CROWN PROSECUTION MANUAL, IN-CUSTODY INFORMER PROSECUTION DIRECTIVE (2017).

58. One example, out of many, is the case of Robert DuBoise, who was imprisoned for thirty-seven years after being wrongfully convicted of murder (he was initially sentenced to death), largely on the testimony of a jailhouse informant who claimed that DuBoise confessed to the murder; DNA evidence finally proved his innocence. Michael Levenson, *DNA Evidence Exonerates Man in 1983 Rape and Killing, Prosecutors Say*, *N.Y. TIMES* (Aug. 26, 2020), <https://www.nytimes.com/2020/08/26/us/robert-duboise-wrongful-conviction.html> [<https://perma.cc/R9FX-2WVV>].

59. See *Informing Injustice*, *supra* note 51.

in jail and testify against cellmates have long been considered notoriously unreliable sources.”⁶⁰ Myrna Raeder poses the painful question, “[i]s it really arguable that prosecutors do not know that jailhouse informants who repeatedly claim they obtained confessions are likely to be fabricating?”⁶¹ And the Ninth Circuit’s Judge Trott offers a clear description of the corrupt and widely known practice:

[B]ecause of the perverse and mercurial nature of the devils with whom the criminal justice system has chosen to deal, each contract for testimony is fraught with the real peril that the proffered testimony will not be truthful, but simply factually contrived to “get” a target of sufficient interest to induce concessions from the government. Defendants or suspects with nothing to sell sometimes embark on a methodical journey to manufacture evidence and to create something of value, setting up and betraying friends, relatives, and cellmates alike.⁶²

The deeply retributive American culture exhibits little concern for the innocents who are sent to prison through distorted forensic evidence and perjured jailhouse informant testimony.⁶³ That is disturbing, but sadly not surprising. This casual attitude toward who gets convicted and punished—whether guilty or innocent—is closely connected with the deep retributivism in American culture.⁶⁴ Though there are retributivists who are genuinely concerned about punitive processes being just—Leo Zaibert is a noteworthy example⁶⁵—the powerful retributive emotions are basically a desire to *strike back* when we feel harmed. In the United States, these emotions are celebrated in television crime dramas and exalted by philosophers, such as Robert Solomon: “to seek vengeance for a

60. BRANDON L. GARRETT, *CONVICTING THE INNOCENT: WHERE CRIMINAL PROSECUTIONS GO WRONG* 124 (2011).

61. Myrna S. Raeder, *See No Evil: Wrongful Convictions and the Prosecutorial Ethics of Offering Testimony by Jailhouse Informants and Dishonest Experts*, 76 *FORDHAM L. REV.* 1413, 1438 (2007).

62. *N. Mariana Islands v. Bowie*, 243 F.3d 1109, 1124 (9th Cir. 2001).

63. See James Q. Whitman, *A Plea Against Retributivism*, 7 *BUFF. CRIM. L. REV.* 85, 85 (2003) (“These thirty years of harsh justice have made for an epochal shift in American law, opening a large divide between the United States and other countries of the western world.”).

64. See *id.*

65. See generally LEO ZAIBERT, *RETHINKING PUNISHMENT* (2018).

grievous wrong, to revenge oneself against evil—that seems to lie at the very foundation of our sense of justice, indeed, of our very sense of ourselves, our dignity, and our sense of right and wrong.”⁶⁶ And that powerful desire for strike-back vengeance often overwhelms any concerns about targeting the actual offender.⁶⁷

D. Retributivism

Suffering harm triggers a strong desire to strike back. It is basically a desire to strike back against *someone*—the wrongdoer if handy, but a scapegoat will do. “From the perspective of a theoretical distinction between provoker and target, redirected aggression is not a special case; in most cases aggression just happens to be directed at the object that provoked it,” because that object is easily available.⁶⁸ “Displaced” or “redirected” aggression is not an anomalous substitute for retributive strike-back desire but is instead the fundamental motive.⁶⁹ As David Barash and Judith Lipton note, when the powerful alpha male harms me, then by attacking *someone else* I serve notice that I am *still* someone to fear: “Natural selection would therefore reward victims who conspicuously ‘take it out’ on someone else.”⁷⁰ Barash and Lipton describe the phenomenon:

Animals—and by all accounts, people, too—who lose a social confrontation experience what is called “subordination stress.” Their blood pressure and adrenal hormones go up, while neurotransmitters that influence the sense of well-being go down. But if these same animals have the opportunity to “take it out” on another individual, their stress hormones and neurotransmitters return to normal levels. In short, living things can reduce their own pain-induced distress by passing that pain to another. Think ... of the pattern: “A hurts B, B hurts C.” By displacing his

66. ROBERT C. SOLOMON, IN DEFENSE OF SENTIMENTALITY 37 (2004).

67. See Michael Potegal, *Aggressive Arousal: The Amygdala Connection*, in THE DYNAMICS OF AGGRESSION: BIOLOGICAL AND SOCIAL PROCESSES IN DYADS AND GROUPS 88-89 (Michael Potegal & John F. Knutson eds., 1994).

68. *Id.* at 88.

69. See DAVID P. BARASH & JUDITH EVE LIPTON, PAYBACK: WHY WE RETALIATE, REDIRECT AGGRESSION, AND TAKE REVENGE 18 (2011).

70. *Id.*

aggression, B down-regulates his stress and upgrades his neurotransmitters by dumping his pain on someone else, who is then inclined to offload his or her burden, giving rise to “C hurts D,” and so on.⁷¹

Our retributive emotions are rooted in a strike-back response that attacks whatever is near. Rats that are shocked and then vent their rage against another rat (or a gnawing post) suffer fewer problems, such as stomach ulcers, than do rats shocked in circumstances in which there is nothing to attack.⁷² In monkey colonies, a subordinate who suffers an attack from a higher ranking monkey typically seeks out an individual lower in the hierarchy for attack.⁷³ A sad cartoon may show a boss berating a subordinate man, the man coming home to yell at his wife, the wife reprimanding the child, the child then kicking the unoffending dog; no explanation is required for the disturbing “humor.” Unscrupulous prosecutors have long realized that grisly photos of the crime scene and the murder victim, and graphic descriptions of the brutal murder, can easily substitute for real evidence against the defendant;⁷⁴ outraged jurors desire to strike back at *somebody*, and the defendant is a convenient target for their wrath.

Analyze This is a comedy about a mob boss being treated by a clinical psychologist.⁷⁵ My favorite part is when the mob boss becomes furious following a phone call with a rival mobster, and the psychologist offers counsel on anger management: “You know what I do when I’m mad, Paul? I hit a pillow. Just hit the pillow, see how you feel.”⁷⁶ After the mobster pulls out a pistol and blows the pillow apart, the psychologist regains sufficient composure to ask, “Feel better?” The mobster replies, “Yeah, I do.”⁷⁷ He does feel better.

71. *Id.* at 17.

72. Charles E. Virgin, Jr. & Robert M. Sapolsky, *Styles of Male Social Behavior and Their Endocrine Correlates Among Low-Ranking Baboons*, 42 AM. J. PRIMATOLOGY 25, 36 (1999).

73. Syunzo Kawamura, *Aggression as Studied in Troops of Japanese Monkeys*, 7 UCLA F. MED. SCIS. 195, 202-03, 216 (1967).

74. See Kevin S. Douglas et al., *The Impact of Graphic Photographic Evidence on Mock Jurors’ Decisions in a Murder Trial: Probative or Prejudicial?*, 21 LAW & HUM. BEHAV. 485, 485-501 (1997); Rebecca H. Grady et al., *Impact of Gruesome Photographic Evidence on Legal Decisions: A Meta-Analysis*, 25 PSYCHIATRY PSYCH. & L. 503, 503-18 (2018).

75. ANALYZE THIS (Warner Brothers 1999).

76. *Id.*

77. *Id.*

When someone (mob boss or philosopher, chimpanzee or rat) is attacked, threatened, or harmed, then by attacking someone else the pain is “passed along” to the next victim.

Redirected aggression in *Analyze This* is amusing; in the case of “the Central Park Five,” it is not. In 1989, a young woman jogging in Central Park was assaulted, raped, and left for dead.⁷⁸ Public anger demanded a target, and five Black and Hispanic youths ranging from fourteen to sixteen years old were quickly arrested.⁷⁹ *New York Daily News* sensationalism fueled the anger with enormous headlines of “*Wolfpack’s Prey: Female Jogger Near Death After Attack by Roving Gang.*”⁸⁰ Donald Trump paid eighty-five thousand dollars to publish a full page advertisement—headlined “BRING BACK THE DEATH PENALTY. BRING BACK OUR POLICE!”—on May 1, 1989, in *The New York Times*, *The Daily News*, *The New York Post*, and *New York Newsday*.⁸¹ Trump’s advertisement demanded the death penalty for the “crazed misfits” whose “CIVIL LIBERTIES END WHEN AN ATTACK ON OUR SAFETY BEGINS.”⁸² The guilt or innocence of the strike-back targets was irrelevant. Strangely worded and inconsistent “confessions” were coerced from the isolated frightened youths, and all were imprisoned for years in either juvenile or adult facilities.⁸³ Thirteen years later, a man convicted of multiple rapes confessed that, acting alone, he had beaten and raped the victim.⁸⁴ DNA evidence confirmed his confession.⁸⁵ The Central Park Five were absolved, and outrage was expressed, but nothing was done to prevent similar injustices.⁸⁶

78. See N. Jeremi Duru, *The Central Park Five, the Scottsboro Boys, and the Myth of the Bestial Black Man*, 25 CARDOZO L. REV. 1315, 1316 (2004).

79. See *id.*

80. *Id.* at 1349 n.306.

81. Rebecca Morin, *They Admitted Their Guilt: 30 Years of Trump’s Comments About the Central Park Five*, USA TODAY (June 20, 2019, 6:14 AM), <https://www.usatoday.com/story/news/politics/2019/06/19/what-trump-has-said-central-park-five/1501321001/> [<https://perma.cc/MX9V-9288>].

82. Amy Davidson Sorkin, *Donald Trump and the Central Park Five*, NEW YORKER (June 23, 2014), <https://www.newyorker.com/news/amy-davidson/donald-trump-and-the-central-park-five> [<https://perma.cc/7X2E-EFCS>].

83. See Duru, *supra* note 78, at 1316-18.

84. *Id.* at 1315-16.

85. *Id.* at 1317.

86. See *id.* at 1364-65.

The powerful desire to strike back is at the heart of retributivism.⁸⁷ This desire is not targeted at the wrongdoer, but at the most convenient target.⁸⁸ It is hardly surprising, then, that profoundly retributive cultures are careless concerning who gets punished and the punitive measures are much harsher (even including capital punishment).⁸⁹ In some cultures, the strike-back motive—though certainly felt—is better controlled and is recognized as a poor guide to behavior; in retributive cultures such as the United States, striking back is celebrated as a fundamental element of moral life.⁹⁰ Cultures that celebrate retributive strike-back policies—complete with politicians who pander to populist punitiveness (penal populism)—are not cultures that can be trusted with potentially dangerous neuroscientific advances that can be exploited for abuse and control.⁹¹ In a culture that does not care about convicting the right person when it is a question of who was guilty of *past* criminal behavior, we cannot expect any greater concern about who is “preemptively imprisoned” or “preemptively treated” on the prediction of *future* criminal behavior.

E. The Penal System

The danger of “preemptive” forced “treatment” (or isolation/incarceration) of those identified as “high risk” may be very low in Sweden or the Netherlands, but it is much higher in the United

87. At a deeper level, the nonconscious “belief in a just world” plays a role in transforming the “pass the pain along desire” into morally justified just deserts and “righteous retribution.” See Adrian Furnham, *Belief in a Just World: Research Progress over the Past Decade*, 34 PERSONALITY & INDIVIDUAL DIFFERENCES 795, 795 (2003) (“The [basic belief in a just world] asserts that, quite justly, good things tend to happen to good people and bad things to bad people despite the fact this is patently not the case.”). To make strike-back harm fit the basic belief in a just world, it is essential that those harmed must justly deserve their suffering. The process is described in greater detail in BRUCE N. WALLER, *THE STUBBORN SYSTEM OF MORAL RESPONSIBILITY* 53-78 (2015).

88. See WALLER, *supra* note 87, at 59.

89. See Michele Cotton, *Back with a Vengeance: The Resilience of Retribution as an Articulated Purpose of Criminal Punishment*, 37 AM. CRIM. L. REV. 1313, 1318 (2000).

90. See *id.* at 1313-14, 1317, 1325, 1358.

91. Populist punitiveness has been particularly strong in the United States. NICOLA LACEY, *THE PRISONERS' DILEMMA: POLITICAL ECONOMY AND PUNISHMENT IN CONTEMPORARY DEMOCRACIES* 3-54 (2008); see also Carolyn Côté-Lussier & Jason T. Carmichael, *Public Support for Harsh Criminal Justice Policy and Its Moral and Ideological Tides*, 24 PSYCH. PUB. POL'Y & L. 235, 235-36 (2018).

States.⁹² Consider programs that offer reduced sentences or probationary release for those who are willing to accept such treatments. Farah Focquaert and her colleagues proposed five essential conditions for the ethical legitimacy of neurointerventions offered “as a condition of probation, parole, or sentence reduction,” as follows:

- (a) the status quo is in no way cruel, inhuman, degrading or in some other way *wrong*;
- (b) the neurointervention itself is in no way cruel, inhuman, degrading, or in some other way *wrong*;
- (c) the neurointervention respects the well-being of the offender;
- (d) the neurointervention targets one or more risk factors for recidivism; and
- (e) the neurointervention is voluntary: the offender is formally required to give his or her free and informed consent upon acceptance.⁹³

There might exist some U.S. prisons that could meet the first standard, prisons that are not “cruel, inhuman, or degrading,” but if so, they are probably the country club prisons reserved for inside traders and corrupt politicians, and it is difficult to imagine any neurointerventions that would effectively target their greed, arrogance, and mendacity. It is even more difficult to imagine guilty stockbrokers consenting to have their greedy characters improved. U.S. prisons holding violent offenders—the prisoners who might be the best candidates for neurointervention—are brutally cruel and degrading.⁹⁴ The European Court of Human Rights condemned solitary confinement as a form of torture and a basic violation of human rights.⁹⁵ Amnesty International reached the same conclusion

92. See LACEY, *supra* note 91, at 3-54.

93. Farah Focquaert et al., *Offering Neurointerventions to Offenders with Cognitive-Emotional Impairments*, in *NEUROINTERVENTIONS AND THE LAW: REGULATING HUMAN MENTAL CAPACITY* 127, 128-29 (Nicole A. Vincent et al. eds., 2020).

94. See, e.g., *Cruel Isolation: Amnesty International's Concerns About Conditions in Arizona Maximum Security Prisons*, AMNESTY INT'L (Apr. 2, 2012) [hereinafter *Cruel Isolation*], <https://www.amnestyusa.org/reports/cruel-isolation-amnesty-internationals-concerns-about-conditions-in-arizona-maximum-security-prisons/> [<https://perma.cc/VMR5-H4J7>].

95. See EUR. CT. OF HUM. RTS., *GUIDE ON THE CASE-LAW OF THE EUROPEAN CONVENTION ON HUMAN RIGHTS* 50 (2021), https://www.echr.coe.int/Documents/Guide_Prisoners_rights_ENG.pdf [<https://perma.cc/ZZ3E-SZSR>] (“[C]omplete sensory isolation, coupled with total social isolation, can destroy the personality and constitutes a form of inhuman treatment which cannot be justified by the requirements of security or any other reason.”).

concerning the notorious U.S. “Supermax” prisons,⁹⁶ where many prisoners live in extreme isolation for years on end, suffering psychological damage that is severe and often irreversible.⁹⁷

Because the “status quo” is horrific, the fifth condition—voluntary consent—also cannot be met. It is one thing to offer the “choice” of prison or treatment if the alternative to treatment is Attica—quite another if the alternative is Bastøy Island. Prison is inherently coercive, and choices in such settings can never be entirely noncoercive, but the latter choice is much less coercive than the former. Neurointervention offers that might be legitimate in Norway are not legitimate in the current culture of the United States, where Supermax prisons routinely violate the prohibition of torture and inflict permanent psychological damage on inmates.⁹⁸ The contrast between the U.S. prison system—and its “just deserts” and “shaming” motives—and the prison system of Norway can be marked by the experience of the former superintendent of Attica Correctional Facility in New York, James Conway, when he visited Halden Prison, a maximum security prison in Norway. Conway was shocked and dismayed when he observed that prisoners were treated with respect and dignity and made as comfortable as possible in a prison setting that looked more like a college campus.⁹⁹ The fact that the recidivism rate from Halden was a fraction of Attica’s rate did not impress him.¹⁰⁰ A prison where inmates were

96. See *Cruel Isolation*, *supra* note 94.

97. See Stuart Grassian, *Psychiatric Effects of Solitary Confinement*, 22 WASH. U. J.L. & POL’Y 325, 332-33, 354 (2006); Bruce A. Arrigo & Jennifer Leslie Bullock, *The Psychological Effects of Solitary Confinement on Prisoners in Supermax Units: Reviewing What We Know and Recommending What Should Change*, 52 INT’L J. OFFENDER THERAPY & COMPAR. CRIMINOLOGY 622, 623, 627, 631, 633 (2008); Jean Casella & James Ridgeway, *Introduction to HELL IS A VERY SMALL PLACE: VOICES FROM SOLITARY CONFINEMENT* 1, 10-12 (Jean Casella et al. eds., 2016).

98. See *supra* notes 95-97 and accompanying text.

99. See Nathan Francis, *A Look at Life Inside Norway’s Halden Prison, Where There Are No Bars and Inmates Have Flat-Screen TVs Inside Their Cells*, INQUISITR (Nov. 9, 2017), <https://www.inquisitr.com/1550875/a-look-at-life-inside-norways-halden-prison-where-there-are-no-bars-and-inmates-have-flat-screen-tvs-inside-their-cells/> [https://perma.cc/9KUM-AXPX].

100. See *id.*; Simon McCormack, *Former New York Prison Warden Visits Norwegian Prison*, HUFFINGTON POST (Dec. 6, 2017), https://www.huffpost.com/entry/ny-prison-warden-norwegian-an-prison_n_6063360 [https://perma.cc/2DTV-Z93H].

treated well, rehabilitated, and lived in relative comfort violated Conway's deepest beliefs about what prison should be:

Prison is not supposed to be comfortable Prison is not a comfortable situation. Society is supposed to be comfortable, the inmate has given up his right to be in society by violating laws, [by] violent crimes, by committing murder, by committing rape. That person shouldn't be coddled, shouldn't be given a situation where we're concerned about how they should feel if someone should walk by their cell and see them on the toilet. Who cares how they feel.¹⁰¹

If offered a "choice" among a long prison sentence in Attica, years in solitary confinement in a U.S. Supermax prison, or a lobotomy, the lobotomy might be a wise choice, but it would hardly be an autonomous or dignity-enhancing choice.

There is another reason why we should be deeply suspicious of any neurointervention programs that are offered to those incarcerated in the United States. If there is a genuine concern with rehabilitation of prisoners, programs could be offered that pose none of the risks associated with neurointervention.¹⁰² Yet those programs are not offered, or, at best, they are in short supply. Less than 10 percent of U.S. prisoners suffering from drug or alcohol addiction have access to treatment.¹⁰³ Though medications for opioid use disorder have been proven effective, only 5 percent of inmates with opioid use disorder receive medication treatment.¹⁰⁴ The United States not only leads the world in imprisonment, but also in its recidivism rate: approximately two-thirds of those released from prison are arrested within three years.¹⁰⁵ For-profit prisons—an enormously profitable growth industry in the United States—have

101. See Francis, *supra* note 99.

102. See Focquaert et al., *supra* note 93, at 144.

103. Redonna K. Chandler et al., *Treating Drug Abuse and Addiction in the Criminal Justice System: Improving Public Health and Safety*, 301 J. AM. MED. ASS'N 183, 185 (2009).

104. NAT'L ACADS. SCIS., ENG'G & MED., MEDICATIONS FOR OPIOID USE DISORDER SAVE LIVES 19-20 (2019).

105. *Measuring Recidivism*, NAT'L INST. OF JUST. (Feb. 20, 2008), <https://nij.ojp.gov/topics/articles/measuring-recidivism> [<https://perma.cc/VQ8R-V7GZ>].

little motive for rehabilitating prisoners; doing so is expensive and cuts into profits, and also lessens the likelihood of “repeat customers.”¹⁰⁶ But these prisons have a powerful motive for any intervention that will make prisoners docile and easier to manage, thus requiring fewer expensive security measures.¹⁰⁷ If neurointervention is proposed at the Norwegian prison on Bastøy Island, it is reasonable to suppose that the motive is finding better methods of rehabilitating prisoners and enhancing their autonomy and their opportunities. Until there is evidence of a genuine commitment to rehabilitation, there is good reason to suspect that the real motive behind any neurointervention program in the United States will be control and pacification, rather than genuine rehabilitation of the prisoner, much less any commitment to enhancing the autonomy of the prisoner.

II. OPPORTUNITIES FOR REFORM

Some cultures may be safe for the use of neuroscience in treating criminals; the American culture is not. But the gross injustices of the American system of criminal “justice” make the larger question even more important: Can advances in neuroscience lead the way to *reform* of a culture, helping to profoundly change the deep systemic wrongs of that cultural system?

A. Cultural Complacency

Joshua Greene and Jonathan Cohen wrote an article provocatively entitled, “For the Law, Neuroscience Changes Nothing and Everything.”¹⁰⁸ They argued that the law, operating as an independent institution with its own basic principles, might largely ignore advances in neuroscience and preserve its deep commitment to individual moral responsibility, but that it is also possible that

106. See Julia Bowling, *Do Private Prison Contracts Fuel Mass Incarceration?*, BRENNAN CTR. FOR JUST. (Sept. 20, 2013), <https://www.brennancenter.org/our-work/analysis-opinion/do-private-prison-contracts-fuel-mass-incarceration> [<https://perma.cc/7ZFJ-E5J6>].

107. There is also the danger of using “therapeutic” justifications as a pretext for lengthening incarceration. Francis A. Allen, *Criminal Justice, Legal Values and the Rehabilitative Ideal*, 50 J. CRIM. L. CRIMINOLOGY & POL. SCI. 226, 229 (1959).

108. Greene & Cohen, *supra* note 14.

advances in neuroscience would bring about fundamental changes in basic beliefs—changes that would result in major changes to the criminal justice system.¹⁰⁹ Their “empirical prediction” was that “as more and more scientific facts come in, providing increasingly vivid illustrations of what the human mind is really like, more and more people will develop moral intuitions that are at odds with our current social practices.”¹¹⁰ I cherish their prediction and fervently hope that advances in neuroscience will bring about a radical change in beliefs about moral responsibility and retributivism and lead to profound changes in the American criminal justice system. But that fervent hope seems approximately as plausible as a hope I cherished half a century ago: that the Age of Aquarius would dawn, peace would guide the planets, and love would steer the stars.

Neuroscience is exciting, its discoveries are fascinating, and its potential seems unlimited. But precisely those factors may lead us to exaggerate the power of neuroscience to facilitate cultural change. Even the most exciting and revolutionary scientific developments often have failed to cause major changes in entrenched cultures and institutions.¹¹¹ The Copernican Revolution was an astounding mathematical and astronomical breakthrough, with potential for dramatically changing the way we see the world and our place in that world.¹¹² Except for a few thinkers, such as Bruno, Kepler, and Galileo, that change did not occur.¹¹³ Cultural and institutional forces—Aristotle’s authority, both Catholic and Protestant churches, and basic “common sense”—held the fixed Earth securely in place.¹¹⁴ Some adjustments were made—the Church and the universities adopted Tychonism, with the Sun orbiting the Earth and all the other planets orbiting the Sun—but the Earth remained fixed and motionless.¹¹⁵ As Bruno and Galileo learned to their sorrow,

109. *See id.* at 1775-78.

110. *Id.* at 1781.

111. *See, e.g.,* Clifford Siskin, *Enlightenment, Information, and the Copernican Delay: A Venture into the History of Knowledge*, 59 *HIST. & THEORY* 168, 180 (2020) (explaining the reluctance of society to immediately accept Copernicus’s theory).

112. *See* Georg Northoff, *Lessons from Astronomy and Biology for the Mind—Copernican Revolution in Neuroscience*, 13 *FRONTIERS HUM. NEUROSCIENCE* 1, 2 (2019).

113. *See id.* at 3.

114. *See* Siskin, *supra* note 111, at 180.

115. *See* Carl Sagan, *The Solar System*, 233 *SCI. AM.* 22, 23 (1975) (explaining Tychonic system).

scientific advances do not sweep all before them, and these advances do not occur in a vacuum; instead, their influence—for good or ill—is shaped and often controlled by the powerful force of cultural institutions.¹¹⁶ Neuroscience is no exception. Copernicus did not change the Aristotelian and Christian culture; instead, changes in that culture made possible the positive acceptance and influence of Copernicanism.¹¹⁷ Likewise, neuroscience will not change our culture; instead, we must carefully consider how our culture must change to make it safe for neuroscience.

B. Individualism & Moral Responsibility

Changing the dangerous and destructive American retributivist system of justice requires overcoming two closely connected and deeply embedded elements of American culture: extreme individualism and commitment to individual moral responsibility. Profound commitment to individual moral responsibility and just deserts is a central feature of the American justice system, as well as a deep assumption in American culture.¹¹⁸ Because the culture and the justice system are mutually supportive, the challenge is even greater.

Radical changes in American culture and in the American criminal justice system are not impossible. Few Americans living through the civil rights movement could have imagined recent cultural developments such as the election of the first Black president, the City of Richmond taking down the statues of Robert E. Lee and Jefferson Davis,¹¹⁹ and the mayor of Columbus, Ohio, announcing the removal of an enormous statue of Christopher Columbus.¹²⁰ My skepticism concerns not the possibility of that change, but the possibility of advances in neuroscientific knowledge bringing about that

116. See Siskin, *supra* note 111, at 180.

117. See *id.*

118. See WALLER, *supra* note 87, at 67-68.

119. Gregory S. Schneider, *Confederate Memorials Quietly Removed from Virginia Capitol Overnight*, WASH. POST (July 24, 2020), https://www.washingtonpost.com/local/virginia-politics/confederate-memorials-quietly-removed-from-virginia-capitol-overnight/2020/07/24/8d2a0dee-cced-11ea-bc6a-6841b28d9093_story.html [https://perma.cc/JE2H-4PSD].

120. Bill Chappell, *Columbus, Ohio, Takes Down Statue of Christopher Columbus*, NPR (July 1, 2020, 9:02 AM), <https://www.npr.org/sections/live-updates-protests-for-racial-justice/2020/07/01/885909530/columbus-ohio-takes-down-statue-of-christopher-columbus> [https://perma.cc/TKV2-XQTY].

change. We are concerned here with changes in *American* beliefs, and Americans rarely embrace scientific changes with open arms and open minds. Most Americans reject the central elements of Darwinism.¹²¹ Greene and Cohen envision a remarkable set of devices that could demonstrate conclusively the nonexistence of the traditional powers of free will that support belief in moral responsibility and just deserts:

At some time in the future we may have extremely high-resolution scanners that can simultaneously track the neural activity and connectivity of every neuron in a human brain, along with computers and software that can [analyze] and organize these data. Imagine, for example, watching a film of your brain choosing between soup and salad. The analysis software highlights the neurons pushing for soup in red and the neurons pushing for salad in blue. You zoom in and slow down the film, allowing yourself to trace the cause-and-effect relationships between individual neurons—the mind’s clockwork revealed in arbitrary detail. You find the tipping-point moment at which the blue neurons in your prefrontal cortex out-fire the red neurons, seizing control of your pre-motor cortex and causing you to say, “I will have the salad, please.”¹²²

This is the stuff of science fiction, but even if such analysis machines existed, the general public would not be swayed by such a demonstration; and libertarian philosophers—who defend a traditional account of free will involving special nondetermined first cause choices—would not be convinced. “We never doubted,” they would say, “that choices between soup and salad are fully determined. But the special choices of free will are not so mundane; they are the choices between principle and desire, the choice to exert a special power of will and rise to duty, the special ‘self-making’ choices that ultimately define our moral characters.”¹²³ When

121. David Masci, *For Darwin Day, 6 Facts About the Evolution Debate*, PEW RSCH. CTR. (Feb. 11, 2019), <https://www.pewresearch.org/fact-tank/2019/02/11/darwin-day/> [<https://perma.cc/9UM4-JHD9>] (finding that 18 percent of Americans believe evolution never occurs, 48 percent believe that evolution was guided by God, and 33 percent believe that evolution occurred through natural processes).

122. Greene & Cohen, *supra* note 14, at 1781.

123. This hypothetical quote paraphrases other philosophers. See CHARLES A. CAMPBELL, *ON SELFHOOD AND GODHOOD* 168 (1957) (“Here, and here alone ... in the act of deciding

Benjamin Libet's own experiments challenged the traditional view of free will based on special conscious choices, Libet did not give up free will; instead, he suggested the possibility of a "free won't," postulating—with no evidence whatsoever—a special intervening choice that could exercise veto power and preserve a workable notion of traditional free will.¹²⁴ Perhaps neuroscience research will have a power that sweeps all doubts before it, but that will make it a uniquely powerful science, unlike any scientific advance that has gone before.

Cultural change is difficult, and changing the judicial system poses special challenges. The law can preserve its system against almost any challenge from empirical evidence.¹²⁵ Psychologists and neuroscientists have made it clear that the legal image of humans and human behavior is fundamentally different from that manifested by scientific research.¹²⁶ The research has had some effect: the United States has finally stopped executing juveniles.¹²⁷ But it has not altered the deep assumptions operating in criminal law.

Joshua Buckholtz and David Faigman argue persuasively for the legal value of rigorous neuroscientific research "that can help guide decisions about whether, how, and when cognitive and neuroscientific data can be used to make legal judgments about individual defendants."¹²⁸ They affirm their belief "that neuroscience can and should be used to enhance the fairness and efficiency of the legal

whether to put forth or withhold the moral effort required to resist temptation and rise to duty, is to be found an act which is free in the sense required for moral responsibility; an act of which the self is sole author."); Robert Kane, *Libertarianism*, in *FOUR VIEWS ON FREE WILL* 26 (2007) ("I believe these undetermined self-forming actions ... occur at those difficult times of life when we are torn between competing visions of what we should do or become.").

124. Benjamin Libet et al., *Time of Conscious Intention to Act in Relation to Onset of Cerebral Activities (Readiness-Potential): The Unconscious Initiation of a Freely Voluntary Act*, 106 *BRAIN* 623, 641 (1983) ("There could be a conscious 'veto' that aborts the performance even of the type of 'spontaneous' self-initiated act under study here.").

125. See Michele Cotton, *A Foolish Consistency: Keeping Determinism out of the Criminal Law*, 15 *B.U. PUB. INT. L.J.* 1, 3-5, 14, 17, 35-36 (2005) (developing a detailed account of systematic judicial efforts to preserve the assumption of free will and moral responsibility from any empirical challenges).

126. See CRAIG HANEY, *CRIMINALITY IN CONTEXT: THE PSYCHOLOGICAL FOUNDATIONS OF CRIMINAL JUSTICE REFORM* 15-38 (2020).

127. *Roper v. Simmons*, 543 U.S. 551, 568, 575 (2005).

128. Buckholtz & Faigman, *supra* note 13, at R866.

system.”¹²⁹ But they insist that if neuroscience is to be valuable to the law, neuroscience must be kept securely in its place:

However, the promise of neuroscience with respect to the law can only ever be fulfilled if we clearly identify and resolve the significant inferential issues that lie at the intersection of these two disciplines.... Crucially, this effort should identify specific legal concepts and standards that are either incommensurable with neuroscience, or for which the law indicates that neuroscientific evidence is unnecessary or unwanted. The law is not compelled to use neuroscientific evidence to render its decisions; judgments made on the basis of moral intuition, normative preference, or institutional precedent do not require the consult of neuroscientist[s].¹³⁰

If neuroscience challenges the basic moral responsibility assumptions of the criminal law, at that point the law and neuroscience are “incommensurable,” and that challenge is disallowed.¹³¹ “[J]udgments made on the basis of moral intuition, normative preference, or institutional precedent”—including, of course, the basic intuition of moral responsibility and free will—are locked in a secure place where moth and rust cannot corrupt nor neuroscientists threaten.¹³² Herbert L. Packer makes explicit the fixed status of the deep and indubitable assumption of free will and moral responsibility that is commonly embraced in legal thought:

The idea of free will in relation to conduct is not, in the legal system, a statement of fact, but rather a value preference having very little to do with the metaphysics of determinism and free will.... [T]he law treats man’s conduct as autonomous and willed, not because it is, but because it is desirable to proceed as if it were.¹³³

Chief Justice Burger (while serving on the United States Court of Appeals for the District of Columbia Circuit) forcefully rejected any

129. *Id.*

130. *Id.* at R866-67.

131. *See id.*

132. *Id.* at R867.

133. HERBERT L. PACKER, *THE LIMITS OF THE CRIMINAL SANCTION* 74-75 (1968).

empirical challenge to the judicial standard for responsibility: “Fixing standards of criminal responsibility is a legal not a medical problem and if we adopt a test based, as it should be, on legal concepts which grow from our traditional ethical and moral standards, we need not be concerned about reconciling the two.”¹³⁴

Belief in a special “first cause” free will is a common belief in the criminal justice system, stretching back hundreds of years and continuing to the present. In 1765, William Blackstone stated that “punishments are ... only inflicted for the abuse of that free-will, which God has given to man.”¹³⁵ At the dawn of the twentieth century, attorney and journalist Gino Speranza affirmed a special power of free will, combining it with a radical distinction between the mind and the physical body:

Law ... stands, pre-eminently for the freedom of the will. Without this as a foundation-stone juridic science has no existence, for the very test of juridic responsibility is man’s power of choice. To this the juridic philosopher brings the sentiment of humanity, the teachings of metaphysics and the experience of history, which are repugnant to the physical measurement of the soul; he contends that after you have taken man’s brain to pieces you have not yet found his mind; that molecular interaction may be demonstrated as the physical counterpart of thought, but it is not thought.¹³⁶

Justice Cardozo agreed, stating that “the law has been guided by a robust common sense which assumes the freedom of the will as a working hypothesis in the solution of its problems.”¹³⁷ In *Morissette v. United States*, the Court insisted that “belief in freedom of the human will and a consequent ability and duty of the normal individual to choose between good and evil” is a basic and universal element of the criminal law.¹³⁸ In *United States v. Grayson*, the Court ruled that a determinist view is “inconsistent with the

134. *Blocker v. United States*, 288 F.2d 853, 868 (D.C. Cir. 1961) (Burger, J., concurring).

135. 4 WILLIAM BLACKSTONE, COMMENTARIES *27.

136. Gino C. Speranza, *The Medico-Legal Conflict over Mental Responsibility*, 13 GREEN BAG 123, 125 (1901).

137. *Steward Mach. Co. v. Davis*, 301 U.S. 548, 590 (1937).

138. 342 U.S. 246, 250 (1952).

underlying precepts of our criminal justice system.”¹³⁹ Justice Scalia was a stalwart judicial champion of individual moral responsibility, and, in an article for a religious publication, he promoted precisely the same view that Blackstone had championed more than two centuries earlier:

The doctrine of free will—the ability of man to resist temptations to evil, which God will not permit beyond man’s capacity to resist—is central to the Christian doctrine of salvation and damnation, heaven and hell. The post-Freudian secularist, on the other hand, is more inclined to think that people are what their history and circumstances have made them, and there is little sense in assigning blame.¹⁴⁰

There is little doubt which perspective Scalia championed in his years on the Supreme Court. The basic assumption of individual—essentially miraculous—free will and moral responsibility also was celebrated by Sanford Kadish, former Dean of the University of California Law School:

While events in the physical world are governed by laws of nature that imply the existence of necessary and sufficient conditions, voluntary decisions to act are not. They are controlled by the choice of the actor, a “wild card,” for whose action no set of conditions is sufficient and no condition is necessary, save the condition of a free act of will. Therefore, though it may be in any particular case that the principal would not have chosen to act without the influence of the accomplice, it is never so as a matter of necessity, since the principal could have chosen otherwise.¹⁴¹

Treated as a central given element of the justice system, no empirical evidence—psychological, biological, or neuropsychological—can threaten moral responsibility.¹⁴² On this view, neuroscience can change some details concerning who is morally responsible and to what degree, but it can never threaten the basic belief in moral

139. 438 U.S. 41, 52 (1978).

140. Antonin Scalia, *God’s Justice and Ours*, 123 *FIRST THINGS* 17, 19 (2002).

141. SANFORD H. KADISH, *BLAME AND PUNISHMENT: ESSAYS IN THE CRIMINAL LAW* 198 (1987).

142. *See supra* note 125 and accompanying text.

responsibility. In the law, moral responsibility is not an empirical question but a given principle that defines the system. So long as that principle is treated as indubitable—all the evidence of the sciences¹⁴³ notwithstanding—the needed changes will not occur.

C. *The American Frontier*

Moral responsibility is not unique to American criminal justice, but the strength, centrality, and endurance of that commitment is particularly powerful in the United States. Moral responsibility is closely linked with the deep and distinctive *rugged individualism* at the heart of American culture.¹⁴⁴ As Craig Haney notes:

Psychological individualism was the prevailing explanatory paradigm of [the nineteenth century] and its assumptions permeated American law and society.... In recent years, the nineteenth-century model of behavior has again been embraced by a number of social scientists whose work has been widely popularized by the media and used by criminal justice professionals to justify harsh policies of punitive segregation.¹⁴⁵

The “rugged individual” is not just a popular icon of Western movies, but a central theme in American culture: the self-sufficient individual who stands alone and needs no help from anyone, who “makes it on his own,” who “takes full responsibility” for his life and actions.¹⁴⁶ There are some “rugged individual” women—Ayn Rand

143. That evidence is set out very clearly by Paul Sheldon Davies. Paul Sheldon Davies, *Skepticism Concerning Human Agency: Sciences of the Self Versus “Voluntariness” in the Law*, in *NEUROSCIENCE AND LEGAL RESPONSIBILITY* 113, 113-14, 122, 129-30 (Nicole A. Vincent ed., 2013); see also Paul Sheldon Davies, *Foundational Facts for Legal Responsibility: Human Agency and the Aims of Restorative Neurointerventions*, in *NEUROINTERVENTIONS AND THE LAW* 322 (Nicole A. Vincent et al. eds., 2020).

144. ROBERT N. BELLAH ET AL., *HABITS OF THE HEART: INDIVIDUALISM AND COMMITMENT IN AMERICAN LIFE* 142, 146 (1985).

145. Craig Haney, *Criminal Justice and the Nineteenth-Century Paradigm: The Triumph of Psychological Individualism in the “Formative Era,”* 6 *LAW & HUM. BEHAV.* 191, 192-93 (1982).

146. See Patrick James McQuillan, *Culture in Conflict: Rugged Individualism and Educational Opportunity in a Diverse Society*, in *PROBLEMS AND ISSUES OF DIVERSITY IN THE UNITED STATES* 161 (Larry L. Naylor ed., 1999).

and Margaret Thatcher are notorious examples—but the icon is John Wayne, and the theme is typically tied to a hypermasculinity.¹⁴⁷ Why did American culture embrace such extreme individualism?

Historian Frederick Jackson Turner’s “frontier thesis”—the idea that American culture was profoundly and uniquely shaped by its open frontier and the opportunities it offered to adventurers, homesteaders, and pioneers—was a powerful influence on American historical thought, especially in the first half of the twentieth century, and it remains a popular idea.¹⁴⁸ Contemporary historians have challenged several elements of Turner’s frontier thesis, but a recent study established the enduring influence of the frontier on American culture.¹⁴⁹ The researchers do not endorse Turner’s overall work, noting that his writings “paint an idealized portrait of frontiersman and leave women and minorities out of the picture” and repeatedly describe settlers taking “free land” that was more often the result of conquest.¹⁵⁰ But their empirical studies, inspired by Turner’s frontier thesis, have revealed an important frontier contribution to American rugged individualism:

The frontier fostered the development of distinctive cultural traits, including individualism and opposition to government intervention. The combination of these two traits characterizes “rugged individualism”.... Frontier individualism is partly but not entirely explained by selective migration. Frontier conditions favored individualism through higher socioeconomic returns, and they created expectations of high income growth through effort, which fueled opposition to government intervention.... In our conceptual framework, the significance of the frontier can be explained by three factors. First, frontier locations attracted individualists able to thrive in harsh conditions. Second, frontier conditions— isolation and low population density—further cultivated self-reliance, and they offered favorable prospects for

147. *See id.* at 166-67.

148. *See* Frederick J. Turner, *The Significance of the Frontier in American History*, ANN. REP. AM. HIST. ASS’N FOR THE YEAR 1893, 199, 215-23 (1893).

149. *See* Samuel Bazzi et al., *Frontier Culture: The Roots and Persistence of “Rugged Individualism” in the United States* 1-4 (Nat’l Bureau of Econ. Rsch., Working Paper No. 23997, 2020).

150. *See id.* at 4.

upward mobility through effort, nurturing hostility to redistribution. Finally, frontier conditions shaped local culture at a critical juncture, thus generating persistent effects.¹⁵¹

European settlers who risked the journey to North America were already moving from settled country to a frontier, and their descendants who sought the risks and rewards farther west were powerfully drawn to the frontier life.¹⁵²

The most striking result from their research is the strong link between counties that had long periods of, what they call, “total frontier experience” between 1790 and 1890 and the enduring contemporary attitude toward rugged individualism in those counties.¹⁵³ Counties that remained frontier for longer periods—counties in which, by measures of population density, the frontier endured rather than moving farther west, counties that for various reasons remained basically frontier rather than becoming settled—continue to this day to have stronger cultures of rugged individualism. They tend to support such conservative policies as preference for limited government and low tax levels while opposing regulation (including setting minimum wage levels) and the redistribution of wealth (including welfare programs).¹⁵⁴ When possible confounding variables were considered, the frontier influence remained.¹⁵⁵ Though the impact is stronger in some areas than others because of the enduring frontier in those areas, the authors conclude that “over the process of westward expansion, the frontier imbued a culture of rugged individualism throughout the U.S.”¹⁵⁶ The effects of sustained frontier culture remain strong, even under very different conditions. The researchers note:

[F]rontier culture ... may have persisted through several mechanisms, even after frontier conditions were long gone. Cultural traits established at early stages can maintain and

151. Samuel Bazzi et al., *Frontier Culture: The Roots and Persistence of “Rugged Individualism” in the United States* 1 (Nat’l Bureau of Econ. Rsch., Working Paper No. 23997, 2018).

152. See Bazzi et al., *supra* note 149, at 4.

153. See *id.* at 9-11.

154. See *id.* at 11-12.

155. See *id.* at 10.

156. Bazzi et al., *supra* note 151, at 4.

even increase their prevalence through various forms of inter-generational transmission. As frontier experience started by definition at the earliest stages of settlement, it was bound to influence the formation of local institutions and social identity, which likely affected subsequent cultural evolution.¹⁵⁷

D. The Neoliberal Obstacle

Because individualism is deeply embedded in American culture and radical individualism is a central element of neoliberalism, it is not surprising that *neoliberalism* found a comfortable home in U.S. economic and social thought.¹⁵⁸ Michael Cavadino and James Dignan make clear the connection between neoliberalism and individualism, as well as neoliberalism's influence on the justice system:

The neo-liberal society tends to exclude both those who fail in the economic marketplace and those who fail to abide by the law—in the latter case by means of imprisonment, or even more radically by execution. This is no coincidence. Both types of exclusion are associated with a highly *individualistic* social ethos. This individualistic ethos leads a society to adopt a neo-liberal economy in the first place, but conversely the existence of such an economy in return fosters the social belief that individuals are solely responsible for looking after themselves. In neo-liberal society, economic failure is seen as being the fault of the atomized, free-willed individual, not any responsibility of society—hence the minimal, safety-net welfare state. Crime is likewise seen as entirely the responsibility of the offending individual. The social soil is fertile ground for a harsh 'law and order ideology.'¹⁵⁹

157. *Id.* at 3. A study of the frontier settlement of Japan's northern island of Hokkaido found that a "frontier culture" of individuality similar to that of the United States developed and persisted. Shinobu Kitayama et al., *Voluntary Settlement and the Spirit of Independence: Evidence from Japan's "Northern Frontier,"* 91 J. PERSONALITY & SOC. PSYCH. 369, 374 (2006) ("Like European Americans in the United States, Hokkaido Japanese embody the spirit of independent agency. These individuals put relatively equal weights on both personal achievement and social harmony. This is in sharp contrast with Japanese in mainland Japan.").

158. See Michael Cavadino & James Dignan, *Penal Policy and Political Economy*, 6 CRIMINOLOGY & CRIM. JUST. 435, 448 (2006).

159. *Id.*

Ronald Reagan expressed the hardline law and order individualism that characterizes neoliberalism: “Our forebears were never concerned about why a person misbehaves. We are straying from the principle of holding the individual responsible for his actions.”¹⁶⁰ A history of abuse, malnutrition, or even lead poisoning is irrelevant.¹⁶¹ John Major, the Conservative Prime Minister when neoliberalism had taken power in the United Kingdom, expressed it clearly in a speech to the 1992 Conservative Party Conference: “Crime wrecks lives, spreads fear, corrupts society. It is the fault of the individual, and no one else.”¹⁶² Seeking to understand the larger causes takes the narrow focus away from the individual, who bears total responsibility.

What effect will neuroscientific advances have on the pernicious radical individualism that permeates American culture and—as Cavadino and Dignan note—provides “fertile ground” for its “law and order ideology”?¹⁶³ The prospects do not appear positive. Suppose we reach the point that strong criminogenic factors can be identified in the brains of those who have committed crimes, factors much more precise and predictively reliable than any analysis we can currently carry out and combinations of factors in precisely identified brain areas. In the current neoliberal culture, these advances would more likely exacerbate rather than ameliorate law and order individualism. Focusing on the individual brain may reinforce the belief that the fault lies not “in our stars” nor in our environments, but in individual selves as manifested in individual brains; the source of the criminal choice and behavior is clearly identified in that *individual’s* brain—not in society or circumstances or environment, but in that specific individual. Lock up the offending individual and the danger is averted—the problem solved.

It may be even worse. If we ever reach such specific knowledge of criminal brains, that knowledge will almost certainly precede by many years any knowledge of how to *fix* such problems. The

160. KATHERINE BECKETT, MAKING CRIME PAY: LAW AND ORDER IN CONTEMPORARY AMERICAN POLITICS 66 (1997).

161. See John Major, U.K. Prime Minister, Leader’s Speech, BRITISH POLITICAL SPEECH (1992), <http://britishpoliticalspeech.org/speech-archive.htm?speech=138> [<https://perma.cc/QP4V-LP2V>].

162. *Id.*

163. See Cavadino & Dignan, *supra* note 158, at 448.

“nothing works” movement in criminology—the insistence that “nothing works” in reforming criminal behavior¹⁶⁴—devastated promising programs¹⁶⁵ for successful criminal rehabilitation and encouraged massive long-term imprisonment as the only solution.¹⁶⁶ If neuroscience seems to specify criminal brain structure with little immediate hope of how to fix the problems, the result could be “nothing works” on steroids. And the specter of “violent criminal brains” that seem strange and alien may heighten fears rather than enhance sympathetic understanding. The “only options” may seem to be permanent incarceration or radical and dangerous brain treatments. If we imagine that risky procedures that could cause severe mental damage would not be adopted, we should remember that in the United States at this moment there are thousands of prisoners in solitary confinement who are suffering psychological damage, much of which is irreversible.¹⁶⁷ The knowledge of the severe risk and the verifiable damage of such methods has not eliminated their use.¹⁶⁸ Any culture willing to swallow the camel of long-term solitary confinement is not likely to strain at the gnat of dubious and dangerous brain treatments. Joel Feinberg notes a distressing tendency in the neoliberal United States—a trend toward demanding severe punishment for those judged insane: “Instead of being a kind of softening excuse, mental illness has become in some quarters a kind of hardening aggravation. Instead of saying, ‘He is mentally disordered, poor fellow, go easy on him,’ some now say, ‘He is a damned sicko, so draw and quarter him.’”¹⁶⁹

As evidence of that disturbing trend, consider the response after John Hinckley, Jr. was declared not guilty by reason of insanity. Rather than taking the opportunity to better understand the

164. See Robert Martinson, *What Works? Questions and Answers About Prison Reform*, 35 PUB. INT. 22, 48-50 (1974).

165. See Paul Gendreau & Robert R. Ross, *Revivification of Rehabilitation: Evidence from the 1980s*, 4 JUST. Q. 349, 350 (1987) (“Our reviews of the research literature demonstrated that successful rehabilitation of offenders had been accomplished, and continued to be accomplished quite well.”).

166. See Francis T. Cullen, *Rehabilitation: Beyond Nothing Works*, in 42 CRIME AND JUSTICE IN AMERICA, 1975-2025 299, 329 (Michael Tonry ed., 2013).

167. See *supra* note 97 and accompanying text.

168. See *supra* note 97 and accompanying text.

169. JOEL FEINBERG, PROBLEMS AT THE ROOTS OF LAW: ESSAYS IN LEGAL AND POLITICAL THEORY 141 (2003).

complex causes of antisocial behavior and the tragedy of severe mental illness, there was a nationwide frenzy to restrict eligibility for being found not guilty by reason of insanity¹⁷⁰—notwithstanding the fact that the defense is rare, and its success extremely rare.¹⁷¹ While some states abolished the insanity defense altogether,¹⁷² others adopted a particularly harsh, cruel, and nonsensical approach: the notorious “guilty but mentally ill” verdict.¹⁷³ Defendants found to be so psychologically impaired that they cannot meet the standards for being guilty of a crime are found guilty anyway.¹⁷⁴ They are then locked in a mental facility for the criminally insane.¹⁷⁵ If following treatment they are finally declared sane, at that point they begin serving a criminal sentence for their crime—the crime of which they were not guilty by reason of insanity, though still found “guilty” by the perverse “guilty but insane” verdict, which jurors

170. See HENRY J. STEADMAN ET AL., BEFORE AND AFTER HINCKLEY: EVALUATING INSANITY DEFENSE REFORM 2 (1993) (“Nearly all of the proposed reforms were designed to restrict use of the insanity defense or to make it a less-attractive option for defendants.”).

171. See Carmen Cirincione et al., *Rates of Insanity Acquittals and the Factors Associated with Successful Insanity Pleas*, 23 BULL. AM. ACAD. PSYCHIATRY & L. 399, 408 (1995) (noting that the defense is used in about 1 percent of felony cases and is successful in about a quarter of those cases).

172. See, e.g., Brian E. Elkins, *Idaho’s Repeal of the Insanity Defense: What Are We Trying to Prove?*, 31 IDAHO L. REV. 151, 154-55 (1994).

173. See Linda C. Fentiman, “*Guilty But Mentally Ill*”: *The Real Verdict Is Guilty*, 26 B.C. L. REV. 601, 604 (1985) (describing how the law is “fatally flawed in two fundamental respects”); Christopher Slobogin, *The Guilty but Mentally Ill Verdict: An Idea Whose Time Should Not Have Come*, 53 GEO. WASH. L. REV. 494, 497 (1985) (arguing that the law “introduces a foreign and meaningless element into the criminal justice system”).

174. Caton F. Roberts et al., *Implicit Theories of Criminal Responsibility: Decision Making and the Insanity Defense*, 11 LAW & HUM. BEHAV. 207, 222 (1987) (describing the study in which 95 percent of subjects found a delusional paranoid schizophrenic not guilty by reason of insanity when the only options were guilty or not guilty by reason of insanity; when the guilty but mentally ill option was added, only 18 percent found the defendant not guilty by reason of insanity while 77 percent opted for guilty but mentally ill). Another study found in the absence of the guilty but mentally ill verdict, 60 percent of subjects favored the not guilty by reason of insanity verdict; when the guilty but mentally ill option was added, only 35 percent favored not guilty by reason of insanity. Caton F. Roberts & Stephen L. Golding, *The Social Construction of Criminal Responsibility and Insanity*, 15 LAW & HUM. BEHAV. 349, 367 (1991). Similar results were found in another study. Jeffrey C. Savitsky & William D. Lindblom, *The Impact of the Guilty but Mentally Ill Verdict on Juror Decisions: An Empirical Analysis*, 16 J. APPLIED SOC. PSYCH. 686, 694 (1986) (adding a guilty but mentally ill option reduced subjects’ verdicts of not guilty by reason of insanity from 29 percent to 10 percent).

175. See Fentiman, *supra* note 173, at 624-28, 624 n.136.

view as a reasonable “compromise.”¹⁷⁶ The subsequent criminal sentence is aimed exclusively at harsh retributive punishment, since successful rehabilitation has already occurred.

The sincere hopes of Greene and Cohen notwithstanding, neuroscience is not the right tool for changing the culture of neoliberalism and its radical individualism, harsh retributivism, and deep belief in individual “just deserts” and moral responsibility. The key to undermining belief in individual moral responsibility is a better understanding of the deeper *causes* of behavior and understanding the rich variety of factors—factors we neither chose nor controlled—that went into shaping our current behavior. Focusing on neuroscience may narrow the focus to the individual and to brain disorders that few will understand and that are far from obvious. If all who suffered brain damage had an iron spike protruding from their skulls—like the famous Phineas Gage¹⁷⁷—then destructive brain damage would be easier to recognize. But problems in the brain are not widely understood and are more likely to conjure up unsympathetic images of dangerous and mysterious monsters than of anything with which most people can easily identify and empathize. Because substantial elements of mind/brain dualism linger in our culture, there is a sense that brains are permanent and intractable, while mind-driven *behavior* is flexible.¹⁷⁸ Tracing causes of behavior seems natural (though we often get them wrong, even for our own behavior, and the inquiries are typically shallow); recognizing brain effects is much more difficult and does not come naturally.

CONCLUSION

The initial steps in loosening the grip of moral responsibility on the American culture will not be by means of a more precise understanding of how the brain functions and malfunctions. That understanding is in its early stages, and even when it is further developed, it will be long before it becomes part of how most people understand behavior and character. The more promising path to

176. See *id.* at 630, 636-37.

177. See JOHN FLEISCHMAN, PHINEAS GAGE: A GRUESOME BUT TRUE STORY ABOUT BRAIN SCIENCE 5-7 (2002).

178. See *supra* note 3 and accompanying text.

challenging moral responsibility is through confronting the harsh reality of why some prosper while others suffer, including the gross unfairness of the neoliberal system and its ugly “justification” by means of moral responsibility and just deserts. The enormous inequities in wealth generated by the neoliberal system, the grossly inadequate “safety net” for those harmed by the system, the exposure of the poor to environmental toxins in their substandard housing and water supply, the rank injustice of the “justice system” in which the poor are locked up when they cannot afford bail while the wealthy, with their lawyers and connections, avoid criminal prosecution—these problems are more obvious and accessible and a more promising path to reform. Black Lives Matter forced Americans to confront the glaring racism and injustice in the American justice system, from the racist practices of many police forces to the long practice of failing to prosecute or convict police officers and prison guards guilty of brutal assaults, horrific homicides, and perjured testimony. The visceral angry reactions of many to Black Lives Matter shows that we have a long way to go, but shining a bright light on systemic injustice is a good start.

When we confront the enormous differences in the starting points of the poor and the wealthy—substandard schools versus private prep schools, malnutrition versus excellent nutrition, limited or nonexistent health and dental care versus specialists and orthodontists, constant harassment by the police versus special protection and dismissed charges, the debilitating effects of prejudice versus the special privileges of “legacy admission”¹⁷⁹ to the best universities—then it is difficult to swallow the neoliberal myth that the wealthy and the impoverished or imprisoned are receiving their just deserts for their morally responsible choices and behavior.

Breaking down the neoliberal system of self-made individuals, moral responsibility, and retributive punishment is best accomplished by deep examination of the causal factors that shape both success and failure in our society, and by the recognition that, for all of us, our successful or failed outcomes are fundamentally a matter of luck. The criminal is not an alien monster, but someone a lot like

179. The Editorial Board, *End Legacy College Admissions*, N.Y. TIMES (Sept. 7, 2019), <https://www.nytimes.com/2019/09/07/opinion/sunday/end-legacy-college-admissions.html> [<https://perma.cc/Z4B9-GHQ9>].

me—had I taken the same path from the same starting point, I might also be living in prison rather than affluent comfort. Empathy can begin to replace fear and loathing. Looking harder and deeper at causes—and at our radically different starting points and paths—exposes the nonsense of the “self-made man” and his moral responsibility and just deserts.¹⁸⁰ Rugged self-made individuals obviously have free will; they are *first* causes, and their histories do not matter. The absurdity of such self-making does not prevent it from being a cornerstone belief. When we root out the individualism and self-making and recognize the importance of social cooperation and what others have done for us and to us, for good or ill, then we can start to make the necessary changes in our culture. When the focus is on the current state of the individual brain, the causes of how that brain developed remain hidden.

This is not to suggest that advances in neuroscience cannot have an impact on belief in moral responsibility. The fervent hope is that eventually improved understanding of the neurological factors that cause antisocial behavior will make people less likely to condemn and more likely to deal more effectively and less cruelly with those who commit crimes. There is some basis for that hope. Extensive research shows that greater understanding of causes reduces the desire to blame and reduces the fear that motivates harsh criminal policies.¹⁸¹ We fear what we do not understand and particularly condemn anyone who seems profoundly different from ourselves. When we recognize that the person who committed a disturbing crime is much like ourselves, with a brain very similar to our own except for a specific problem that was not the work of the criminal and is something that could happen to any of us—including our children and loved ones—then the fear may be replaced by sympathy. Someone who was brutalized by abuse and trauma is someone we

180. See generally THOMAS NAGEL, MORTAL QUESTIONS 24-25, 37-38 (1979); BRUCE N. WALLER, AGAINST MORAL RESPONSIBILITY 115-31 (2011); NEIL LEVY, HARD LUCK: HOW LUCK UNDERMINES FREE WILL AND MORAL RESPONSIBILITY 87-106 (2011); ADRIAN RAINE, THE ANATOMY OF VIOLENCE: THE BIOLOGICAL ROOTS OF CRIME 242-72 (2013); JONATHAN WOLFF & AVNER DE-SHALIT, DISADVANTAGE 119-28 (2007); Gregg D. Caruso, *A Defense of the Luck Pincer: Why Luck (Still) Undermines Moral Responsibility*, 28 J. INFO. ETHICS 51 (2019).

181. See generally Mark D. Alicke, *Culpable Control and the Psychology of Blame*, 126 PSYCH. BULL. 556 (2000); David Indermaur et al., *A Matter of Judgment: The Effect of Information and Deliberation on Public Attitudes to Punishment*, 14 PUNISHMENT & SOC'Y 147 (2012).

can understand, and someone we ourselves might have been. That individual may still be dangerous, but he is a lot like me and must be treated with decency and respect, and every effort must be made to help him.

Individualist moral responsibility is a destructive and dangerous force that blocks deeper understanding, supports harsh retributive punishment, glorifies greed as just deserts, and minimizes resources for the less fortunate. There is no magic bullet for fixing the profound wrongs in American culture, but recognizing the nature of the neoliberal system and its harmful elements is the vital first step. Neuroscience may not strike the first blows, but eventually it can lead to significant improvements in the way our criminal justice system operates and contribute to a major restructuring of our culture and our system of criminal justice. In ten years, my hope is not that neuroscience will have transformed our society and our criminal justice system; instead, I hope that our culture will have changed in ways that make it safe for the effective and beneficial use of neuroscience.