

INCAPACITATING ERRORS: SENTENCING AND THE SCIENCE OF CHANGE

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ABSTRACT

Despite widespread support for shifting sentencing policy from “tough on crime” to “smart on crime,” reflected in legislation like the federal First Step Act, the scope of criminal justice reform has been limited. We continue to engage in practices that permanently incapacitate people deemed to be hardened or habitual criminals, while carving out only limited niches of sentencing reform for special groups like first-time, nonviolent offenders and adolescents. We cannot, however, be “smart on crime” without a theory of punishment that supports second chances for the broadest range of people convicted of crimes.

This Article posits that the cultural belief that adults do not change poses a major impediment to “smart on crime” policies. Current sentencing policies focus on long-term incapacitation of adults with criminal records because of our folk belief that adult personality traits are immutable. Whereas adolescents are expected to mature over time, and thus can rarely be determined to require permanent incapacitation, adults lack the benefit of the presumption of change.

Standing in contrast to our folk belief that adults do not change is a growing body of neuroscientific and psychological literature that this Article refers to as, “the science of adult change,” which demonstrates that adult brains change in response to environmental prompts and experience.

The science of adult change has powerful implications for punishment theory and practice. In its broadest sense, the science of adult change supports an empirically grounded, normative claim that sentencing should not attempt to identify the true criminal to permanently exclude him. Rather, sentencing policy should engage in only modest predictions about future behavior. The presumption of reintegration as a full member of society should be the norm. Moreover, because adult change occurs in response to environmental stimuli, the science of adult change supports both public accountability for the conditions of confinement and, ultimately, a

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challenge to incarceration as our primary means of responding to social harm.

TABLE OF CONTENTS

INTRODUCTION.....	152
I. FROM “SUPERPREDATORS” TO UNFINISHED BRAINS:	
SCIENCE AND SENTENCING KIDS.....	157
II. FOLK BELIEFS AND THE SCIENCE OF ADULT CHANGE.....	163
A. <i>The Idea of Permanent Criminality in Adulthood</i>	163
B. <i>Change in Adulthood</i>	171
1. Neuroscience	172
2. Personality Psychology	175
3. The Contextual Nature of Behavior	178
4. Criminology: The Age-Crime Curve.....	180
5. Revolution in Our Theory of Change.....	182
III. THE RELEVANCE OF ADULT CHANGE TO SENTENCING.....	186
A. <i>Applying the Science of Adult Change to Sentencing Theory</i>	186
B. <i>The Principles of Inclusivity and Retention to Condemn</i>	190
C. <i>Accountability for Contexts Producing Change</i>	198
CONCLUSION.....	201

INTRODUCTION

Criminal punishment in the United States often results in the permanent exclusion of the convicted person from society.¹ Sentences for incarceration are longer than in other Western countries.² At least one-sixth of U.S. prisoners have been incarcerated for over ten years.³ An estimated 200,000 people are currently serving a life sentence or its equivalent.⁴ Exclusionary sentencing practices extend beyond the prison walls to a multitude of collateral consequences.⁵ Practices that prevent people with criminal convictions from living in public housing, obtaining professional licenses, and participating in other aspects of society limit their participation in civic life and, thus, thwart any meaningful reintegration into society.⁶

1. Sharon Dolovich, *Creating the Permanent Prisoner*, in *LIFE WITHOUT PAROLE: AMERICA'S NEW DEATH PENALTY* 96, 97 (Charles J. Ogletree, Jr. & Austin Sarat eds., 2012) (“[T]he American carceral system, once to some extent at least rhetorically committed to reintegration . . . has come explicitly to embrace the opposite approach, that of permanent exclusion.”).

2. ASHLEY NELLIS, *THE SENTENCING PROJECT, STILL LIFE: AMERICA'S INCREASING USE OF LIFE AND LONG-TERM SENTENCES* 5 (2017) (stating one out of nine people in prison is serving a life sentence, and one out of every seven people in prison is serving either a life or virtual life sentence).

3. U.S. DEP'T JUST., OFF. JUST. PROGRAMS, BUREAU JUST. STAT., NATIONAL CORRECTIONS REPORTING PROGRAM, 1991-2015: SELECTED VARIABLES (ICPSR 36862) (2018).

4. NELLIS, *supra* note 2.

5. Dolovich, *supra* note 1, at 115–16.

6. Gabriel J. Chin, *The New Civil Death: Rethinking Punishment in the Era of Mass Conviction*, 160 U. PENN. L. REV. 1789, 1800–01 (2012) (discussing how collateral consequences like voter disenfranchisement, restrictions on public employment and professional licensing, and registration requirements bear many of the hallmarks of “civil death,” because they exclude convicted people from

Other scholars have described these exclusionary practices as a system of “total incapacitation,”⁷ “permanent exclusion,”⁸ and “banishment.”⁹ Exclusionary practices can serve retributive and deterrent functions, but their hallmark is that they are designed to protect public safety through incapacitating the offender.¹⁰ Indeed, in the early 1990s, Attorney General William P. Barr advanced a purely incapacitative model of crime reduction, arguing that incapacitation through imprisonment was the most effective way to ensure public safety.¹¹ Incapacitation as a justification for exclusionary punishments is, thus, a central area of concern and the focus of this Article.

In the political sphere, efforts have been made to identify certain groups of people convicted of crimes who do not pose a long-term public safety risk or otherwise appear to merit a second chance. Examples of legislative efforts designed to meet these goals have increased in recent years through Justice Reinvestment Initiatives at the state level¹² and the federal First Step Act.¹³ Other examples of reform designed to remove the non-dangerous from exclusion—which I will discuss at length in Part I—aim to disentangle children and adolescents from adult prison, with its dangerous conditions and long sentences.¹⁴

Scholarly criticism of the reform efforts has included doubt about the accuracy and fairness of risk assessment instruments.¹⁵ Additionally, there

important aspects of civic life); Jenny Roberts, *Ignorance is Effectively Bliss: Collateral Consequences, Silence, and Misinformation in the Guilty-Plea Process*, 95 IOWA L. REV. 119, 127–28, 190 (2009) (discussing the severity of collateral consequences such as exclusion from public housing and restrictions from professional licensing within the context of professional responsibility and ineffective assistance of counsel claims).

7. Jonathon Simon, *How We Punish Murder*, 94 MARQ. L. REV. 1241, n.50 (2011) (discussing life sentences and “total incapacitation”).

8. Sharon Dolovich, *Exclusion and Control in the Carceral State*, 16 BERKELEY J. CRIM. L. 259, 309 (2011) (describing life sentences as “permanant exclusion”).

9. Joshua Kleinfeld, *Two Cultures of Punishment*, 68 STAN. L. REV. 933, 948 (2016) (describing prison as “banishment within territorial limits”).

10. See JONATHAN SIMON, MASS INCARCERATION ON TRIAL 41–42 (2014); see also Malcolm M. Feeley & Jonathon Simon, *The New Penology: Notes on the Emerging Strategy of Corrections and Its Implications*, 30 CRIMINOLOGY 449, 458 (1992); Robert Weisberg, *Barrock Lecture: Reality Challenged Philosophies of Punishment*, 95 MARQ. L. REV. 1203, 1241 (2012) (describing retribution as the “stock story” of sentencing, while incapacitation is the actual, driving force and goal).

11. See WILLIAM P. BARR, U.S. DEP’T JUST., THE CASE FOR MORE INCARCERATION 1 (1992) (arguing that “[p]risons work” by incapacitating people who commit crimes, regardless of whether they serve deterrent or rehabilitative functions. The influential policy paper at no point mentioned retributivism as a goal of incarceration).

12. PEW CHARITABLE TRUSTS, 35 STATES REFORM CRIMINAL JUSTICE POLICIES THROUGH JUSTICE REINVESTMENT (2018) (reporting that thirty-five states enacted Justice Reinvestment Initiatives between 2007 and 2018 to reduce prison populations and, thus, prison spending and to redirect the funds to community-based sanctions).

13. See First Step Act of 2018, Pub. L. No. 115-391, 132 Stat. 5194 (2018) (including provisions designed to prepare for reintegration into society, such as time-credit for good behavior, rehabilitative programming in prisons, and housing prisoners closer to their home communities so that they can maintain relationships with family).

14. See JULIA DURNAN ET AL., URBAN INST., STATE-LED JUVENILE JUSTICE SYSTEMS IMPROVEMENT: IMPLEMENTATION PROGRESS AND EARLY OUTCOMES 3 (2018).

15. See, e.g., Erin Collins, *Punishing Risk*, 107 GEO. L.J. 57, 85 (2018) (critiquing the “off-label” use of actuarial risk assessment in sentencing decisions).

is general concern that legislative efforts to provide a second chance do too little, skimming only a small percentage of convicted people out of a deep ocean of incapacitative imprisonment, state supervision, and exclusionary practices.¹⁶ The beneficiaries of the reforms are most often those whom Marie Gottschalk calls the “non, non, nons”—“nonviolent, nonserious, and nonsexual offenders.”¹⁷ In other words, the beneficiaries appear to be only those who could not be imagined to pose any potential safety risk.

Further criticism has noted that the reform efforts do nothing to challenge a central assumption of American punishment: that many people who commit crimes are characterologically criminal and incapable of change.¹⁸ Theories aiming to explain the U.S. attitude toward people who commit crimes as characterologically criminal have suggested the role of the unique features of U.S. history. Specifically, scholars have argued that both the absence of dignity discourse that Europe absorbed from the age of nobility¹⁹ and the legacy of white supremacist myths of black dangerousness used to justify subordination from slavery onward, have played roles in the development of U.S. folk beliefs about criminality.²⁰

While many intriguing and urgent questions about the purpose and practice of punishment are raised by mass incarceration and current reform efforts,²¹ I focus this Article on the problem in our conceptualization of the characterological criminal who is incapable of change. The concept of the characterological criminal underlies the impulse to permanently incapacitate. I argue that the characterological criminal is a creation of folk beliefs about the permanence of character, personality, and behavior in adulthood. Until these folk beliefs are empirically challenged and corrected, we will see only minor tinkering around the edges of sentencing reform.

16. See Jessica M. Eaglin, *Against Neorehabilitation*, 66 S.M.U. L. REV. 189, 211 (2013) (characterizing neorehabilitation as a pragmatic approach to reducing costs by finding alternatives to incarceration for a class of defendant considered to be statistically unlikely to reoffend).

17. MARIE GOTTSCHALK, *CAUGHT: THE PRISON STATE AND THE LOCKDOWN OF AMERICAN POLITICS* 165 (2015).

18. Joshua Kleinfeld, *Two Cultures of Punishment*, 68 STAN. L. REV. 933, 941 (2016) (“Implicit in American punishment is the idea that serious or repeat offenses mark the offenders as morally deformed people rather than ordinary people who have committed crimes.”).

19. For a discussion of dignity in Europe and American, see JAMES WHITMAN, *HARSH JUSTICE: PUNISHMENT AND THE WIDENING DIVIDE BETWEEN AMERICA AND EUROPE* 101 (2003).

20. For a discussion of U.S. white supremacy in the construction of the myth of Black criminality, see Brief for the National Black Law Students Ass’n as Amicus Curiae in Support of Petitioner, at 5–8, *Buck v. Davis*, 137 S. Ct. 759 (2017) (No. 15-8049) (citing GEORGE M. FREDRICKSON, *THE BLACK IMAGE IN THE WHITE MIND: THE DEBATE ON AFRO-AMERICAN CHARACTER AND DESTINY 1817–1914* (1987)) (discussing the racialized construct of criminal dangerousness); see also KHALIL GIBRAN MUHAMMAD, *THE CONDEMNATION OF BLACKNESS* 3–4 (2010); M. Eve Hanan, *Remorse Bias*, 83 MO. L. REV. 301, 303–04 (2018) (asserting the racialized myth of characterological criminality results in implicit bias against crediting the remorse expressed by Black defendants at sentencing).

21. See Benjamin Levin, *The Consensus Myth in Criminal Justice Reform*, 117 MICH. L. REV. 259, 261–62 (2018).

The practice of deciding who should be incapacitated, and for how long, rests less on data and more on popular beliefs about why people do what they do, sometimes referred to as “folk psychology.”²² Folk psychology is defined as how we imagine one another, particularly how we imagine the inner worlds of one another.²³ It encompasses all of our ordinary, nonprofessional, “implicit theories about a variety of human attributes,”²⁴ including bases for our predictions about human thought and behavior.²⁵

Folk psychology influences how we think about crime and punishment.²⁶ Deciding guilt and setting punishment in criminal cases has historically relied on common intuitions about thinking and behavior. Jurors apply a common sense approach to judging the defendant’s state of mind and the reasonableness of defense claims.²⁷ And judges, while fortified with risk assessment instruments and sentencing guidelines, ultimately take a common sense approach to setting punishment in accordance with their goals of retribution, deterrence, incapacitation, or rehabilitation.²⁸

The folk beliefs at work in the conceptualization of the characterologically criminal are: (1) that actions demonstrate character; (2) that adults do not change; and, thus (3) that we can accurately predict dangerousness based on a person’s past actions. This set of beliefs around the permanence of adult traits and behavior undergirds the practice of permanently excluding people who have previously committed crimes. Consider the idea of a “habitual offender” or a “career criminal.”²⁹ Both designations—particularly when used in sentencing enhancements to impose life

22. Joshua Greene & Jonathan Cohen, *For the Law, Neuroscience Changes Nothing and Everything*, 359 PHIL. TRANSACTIONS ROYAL SOC’Y LONDON 1775, 1776 (2004).

23. See Stephen J. Morse, *Criminal Law and Common Sense: An Essay on the Perils and Promise of Neuroscience*, 99 MARQ. L. REV. 39, 40 (2015) (arguing that neuroscience should not undermine criminal law’s commitment to treating people as free agents when they commit crimes); see also Deborah W. Denno, *Concocting Criminal Intent*, 105 GEO. L.J. 323, 334 (2017). While the idea of free agency is hotly debated historically, and in light of the new neuroscience, I do not address questions of intent and responsibility in this Article. I note, though, that neuroscience is not the first challenge to folk psychology’s claim of free agency. Determinism has long posited that, because every action must have a cause, our actions must be the product of other actions that predetermine them, no matter how vividly we experience the sensation of choice.

24. David Scott Yeager et al., *The Far-Reaching Effects of Believing People Can Change: Implicit Theories of Personality Shape Stress, Health, and Achievement During Adolescence*, 106 J. PERSONALITY & SOC. PSYCHOL. 867, 868 (2014) (studying the effect of implicit views on whether people change on stress, health, and achievement among high school freshman).

25. See Morse, *supra* note 23, at 72. Even scholars critical of law’s overexuberant embrace of neuroscience tentatively support the idea that neuroscience may demonstrate that some rules, doctrines, and policy in criminal law are based on incorrect folk beliefs about human thinking and behavior.

26. Green & Cohen, *supra* note 22.

27. Katrina L. Sifferd, *In Defense of the Use of Commonsense Psychology in the Criminal Law*, 25 LAW & PHIL. 571, 598 (2006).

28. See *id.*

29. Both the terms “habitual offender” and “career criminal” appear in descriptions of sentencing enhancement statutes that have been upheld—in whole or in part—by the Supreme Court. See, e.g., *United States v. Davis*, 139 S.Ct. 2319, 2336 (2019) (invalidating the residual clause of the federal Armed Career Criminal Act as unconstitutionally vague); *Rummel v. Estelle*, 445 U.S. 263, 286 (1980) (Powell, J., dissenting) (disagreeing with the majority’s holding that Texas’ “habitual offender” statute did not violate the cruel and unusual punishments prohibition of the Eighth Amendment as applied to a defendant sentenced to life in prison for a third, nonviolent offense).

sentences for nonviolent, repeat offenses—connote a judgment that the person convicted is characterologically criminal.

Yet a growing body of scientific literature, derived from diverse fields of science, suggests that people continue to change throughout adulthood depending, in part, on external stimuli. At least two findings from what I will call “the science of adult change” have sentencing implications.³⁰ First, people keep changing throughout life and, thus, continue to be capable of growth.³¹ Second, changes in adult brains are dependent on external stimuli, including environment and new experiences.³²

Stated generally, the claim that adults change may not seem particularly revelatory, but rather, confirms what might be observed anecdotally. Many neuroscientists point out, however, that potential for adult change was grossly underestimated before the discovery of neuroplasticity.³³ And, to the extent that neuroscientific images may be confirmatory rather than revelatory,³⁴ they still profoundly impact an understanding of how people change.

The science of adult change has several important implications for exclusionary punishments. First, we may incapacitate people long after they pose a threat to public safety. Sentencing policy should be reconsidered to account for human change over time. Second, because adult brains change in response to environmental stimuli, prison conditions can be understood to directly “rewire” the brains of incarcerated people, often in ways that are ruinous and that frustrate rehabilitative and even deterrent goals. This suggests a principle of sentencing that embodies public accountability for the conditions of punishment.

It is essential to empirically challenge the goals of punishment practices to reform criminal justice. When we talk about the traditional goals of punishment—retribution, incapacitation, deterrence, and rehabilitation—we are often engaging in a theoretical universe that ignores “the stubborn facts of a system of imprisonment they often justify or enable.”³⁵ The science of adult change presents an empirical challenge to current incapacitative practices and also reframes questions of rehabilitation. Insofar as empirical challenges demonstrate that punishment theory is inadequate,³⁶ the science of adult change also suggests principles that could undergird future punishment theories.

30. See discussed in *infra* Part II.

31. See discussed in *infra* Part II.

32. See discussed in *infra* Part II.

33. See discussed in *infra* Part II.

34. Morse, *supra* note 23, at 66–67 (discussing the use of neuroscience in *Roper v. Simmons*, which banned the death penalty for juveniles, Morse asks what the neuroscience could tell the court that we do not already know from observing children’s behavior).

35. Weisberg, *supra* note 10, at 1204–08.

36. Jeffrey Fagan, *Dignity is the New Legitimacy*, in *THE NEW CRIMINAL JUSTICE THINKING* 311, 316 (Sharon Dolovich & Alexandra Natapoff eds., 2017) (noting the need for a new “set of principles for thinking about the harms of order maintenance.”).

I discuss in Part I how developmental science influenced both the U.S. Supreme Court and lawmakers in many states to limit life sentences for juveniles. Although children are certainly different from adults in important ways, I argue that a careful examination of how science was used to dispel the folk notion of the incorrigible child “superpredator” reveals important and underconsidered parallels to adult sentencing.³⁷ Specifically, the shift from “superpredator” to a developmental science approach in juvenile law exemplifies the type of empirically-driven shift in belief necessary in adult sentencing to counteract the folk belief in the permanence of adult criminality.

In Part II, I discuss how folk psychology is stubbornly committed to the idea that adult personality and behavior is fixed. As a consequence, folk psychology shapes sentencing policy toward the conclusion that adults who continue to commit criminal acts should be permanently incapacitated. I then describe some of the new scientific research that supports the claim that adults continue to change through adulthood, particularly in response to environment.

In Part III, I argue that the continued capacity to change throughout the lifespan, combined with evidence of the primacy of environmental stimuli in shaping change, should have broader and more striking applications to sentencing policy. I suggest two principles that could inform sentencing theory and policy. At its foundation, the science of adult change should result both in a strong presumption against permanent exclusion and accountability for the conditions of confinement. In this model, the state’s response to crime should be designed to provide the context that will support the kind of change that leads to desistance from crime. Policies should include: reduced reliance on incarceration; shorter sentences; options for early release from prison; and accountability for the ruinous conditions of confinement.

I. FROM “SUPERPREDATORS” TO UNFINISHED BRAINS: SCIENCE AND SENTENCING KIDS

Whether we perceive criminality in a person to be malleable or fixed is often a pivotal issue at sentencing. Recent shifts in attitudes toward adolescents who commit crimes highlights how pivotal the question of an individual’s capacity to change can be to punishment decisions. To understand the significance of adolescent capacity to change, consider how it shaped (1) both U.S. Supreme Court’s opinions, which barred the death penalty and limited life without parole for adolescents; and (2) the wave of recent legislation limiting extreme sentences for

37. The idea of a class of children who are “superpredators” appears to have come from an opinion piece written by a political scientist, who described a hypothetical youth who is impulsive, remorseless, and able to kill, rape, or maim, without giving it a second thought. John J. Dilulio, Jr., *Defining Criminality Up*, WALL ST. J., <https://www.wsj.com/articles/SB836340511566636500> (last updated July 3, 1996).

juveniles.³⁸ The past fifteen years have demonstrated, in the juvenile context, that scientific ideas can modify folk beliefs, thereby reshaping sentencing theory and practice.

Folk beliefs about childhood have traditionally distinguished children from adults, holding children less blameworthy for their actions and more capable of change through maturation.³⁹ The established cultural norms of childhood found early expression in the establishment of the juvenile court.⁴⁰ The Progressive Era's new juvenile courts aimed to fulfill the role of a parent for wayward children, providing guidance and discipline designed to promote normal maturation away from a life of crime.⁴¹ While juveniles facing delinquency proceedings were increasingly accorded some of the rights of defendants in criminal trials, the philosophy of juvenile court continued to rest on a belief in children's basic goodness, which is inextricably tied to their capacity to change and reform as they mature.⁴²

In the 1980s and 1990s, however, a new folk belief gained ascendancy: the belief in the "superpredator."⁴³ The "superpredator" is a child who, through engaging in serious crime, demonstrates that he is permanently incorrigible, uniquely culpable, and incapable of change. Many examples of children and adolescents deemed "superpredators" were African American,⁴⁴ demonstrating a continuation of racialized concepts of criminality.⁴⁵ The result of the "superpredator" construct was a wave of punitive legislation for adolescents.⁴⁶ Simply labeling children as superpredators led to more extreme sentences.⁴⁷ In the 1990s, adult defendants, who were sentenced more frequently to prison, and for longer prison terms, were

38. *Montgomery v. Louisiana*, 136 S. Ct. 718, 736 (2016) (holding juveniles whose crimes reflect transient immaturity have a substantive right to a meaningful opportunity from release from prison); *Miller v. Alabama*, 567 U.S. 460, 489 (2012) (holding mandatory life without parole sentences for juvenile homicide offenders violates the Eighth Amendment's punishments clause); *Graham v. Florida*, 560 U.S. 48, 50 (2010) (holding life without parole sentences for nonhomicide juvenile offenders violates the Eighth Amendment's punishments clause); *Roper v. Simmons*, 543 U.S. 551, 578 (2005) (holding death penalty for crimes committed by defendants under the age of eighteen violates the Eighth Amendment's cruel and unusual punishment's clause).

39. *See In re Gault*, 387 U.S. 1, 59 (1967) (Black, J., concurring) (describing foundational beliefs underlying the informality and paternalism of juvenile court proceedings).

40. *See id.* at 60.

41. *See* DAVID S. TANENHAUS, *THE CONSTITUTIONAL RIGHTS OF CHILDREN* 4–5 (2011).

42. *See* *Thompson v. Oklahoma*, 487 U.S. 815, 835–38 (1988) (plurality opinion); *Gault*, 387 U.S. at 61 (Black, J., concurring).

43. Dilulio, *supra* note 37.

44. *See, e.g.,* Tamar R. Birkhead, *The Racialization of Juvenile Justice and the Role of the Defense Attorney*, 58 B.C. L. REV. 379, 408–16 (2017) (asserting other scholars have documented how myths of Black criminality destroy our ability to see Black children as children. And, this is a clear function of the "superpredator" myth that led to dramatic increases in (1) charging children as adults; and (2) sentencing children to adult prisons for extremely long terms of years).

45. Robin Walker Sterling, "Children Are Different": *Implicit Bias, Rehabilitation, and the "New" Juvenile Jurisprudence*, 46 LOY. L.A. L. REV. 1019, 1044–46 (2013) (tracing the nineteenth and twentieth century history of treating Black children's disciplinary issues as crimes deserving of criminal punishment).

46. *Id.* at 1054–65 (discussing the role of "superpredator" language in increasing transfer of juveniles to criminal court and imposition of life without parole sentences for adolescent defendants).

47. Birkhead, *supra* note 44, at 415–16 (noting that other scholars have documented how myths of Black criminality destroy our ability to see Black children as children).

joined by children tried as adults as part of a dramatic expansion of the prison system.⁴⁸

Four U.S. Supreme Court cases can be read as actively grappling with the folk construct of the “superpredator” and its tension with the traditional view of children as more capable of change than adults. In *Roper v. Simmons*,⁴⁹ the Supreme Court categorically barred the death penalty for crimes committed by defendants under the age of eighteen.⁵⁰ In *Graham v. Florida*,⁵¹ the Supreme Court categorically barred the imposition of a life without parole sentence for nonhomicide crimes committed by defendants under the age of eighteen.⁵² In *Miller v. Alabama*,⁵³ the Supreme Court held that sentencing courts must consider the “mitigating aspects of youth” before imposing life without parole sentencing for homicide crimes committed by defendants under the age of eighteen.⁵⁴ In *Montgomery v. Alabama*,⁵⁵ the Supreme Court held that *Miller* is retroactive, thereby emphasizing the substantive right of juveniles to certain protections in sentencing.⁵⁶

These cases, which are well-trodden territory for legal scholars, address several themes in addition to the capacity to change—such as the adolescent defendant’s reduced culpability.⁵⁷ For the purposes of this Article, I limit my discussion to one aspect of their analysis: how childhood maturation reduces the need for incapacitative punishment and increases the likelihood of rehabilitation.

A theme running through U.S. Supreme Court cases on life and death sentences for adolescents is the acknowledgment of the great difficulty sentencing courts face when trying to decide whether an adolescent is characterologically criminal, or manifesting “irreparable corruption.”⁵⁸ Barring the death penalty for juveniles, the *Roper* Court stated,

If trained psychiatrists with the advantage of clinical testing and observation refrain, despite diagnostic expertise, from assessing any juvenile under 18 as having antisocial personality disorder, we conclude

48. See PARTICK GRIFFIN ET AL., U.S. DEP’T JUST., TRYING JUVENILES AS ADULTS: AN ANALYSIS OF STATE TRANSFER LAWS AND REPORTING (2011).

49. 543 U.S. 551 (2005).

50. *Id.*

51. 560 U.S. 48 (2010).

52. *Id.* at 75.

53. 567 U.S. 460 (2012).

54. *Id.*

55. 136 S. Ct. 718 (2016).

56. *Id.* at 736.

57. See Rachel E. Barkow, *Life without Parole and the Hope for Real Sentencing Reform*, in LIFE WITHOUT PAROLE: AMERICA’S NEW DEATH PENALTY?, *supra* note 1, at 190, 203; Jonathon Simon, *Dignity and Risk: The Long Road from Graham v. Florida to Abolition of Life Without Parole*, in LIFE WITHOUT PAROLE: AMERICA’S NEW DEATH PENALTY?, *supra* note 1, at 282, 285–86; Michael M. O’Hear, *Not Just Kid Stuff? Extending Graham and Miller to Adults*, 78 MO. L. REV. 1087, 1089–90 (2013).

58. *Miller v. Alabama*, 567 U.S. 460, 479–80 (2012) (quoting *Roper v. Simmons*, 543 U.S. 551, 573 (2005) (discussing difficulty determining which adolescent crime reflects “transient immaturity” and which crime reflects “irreparable corruption”)).

that States should refrain from asking jurors to issue a far graver condemnation—that a juvenile offender merits the death penalty.⁵⁹

Likewise, when it barred life without parole sentences for adolescents convicted of offenses other than homicide in *Graham*, the Court highlighted the expectation that children change as they mature, and, thus, are entitled to a “meaningful opportunity to obtain release” through demonstrated rehabilitation.⁶⁰

In *Miller*, the Court restated the “great difficulty we noted in *Roper* and *Graham* of distinguishing at this early age between ‘the juvenile offender whose crime reflects unfortunate yet transient immaturity, and the rare juvenile offender whose crime reflects irreparable corruption.’”⁶¹ In *Montgomery*, which held that the Court’s rulings in *Miller* and *Graham* are retroactive, the Court once again emphasized the expectation that children mature out of crime and, thus, deserve the opportunity to demonstrate their rehabilitation. In the Court’s clearest statement yet of adolescent capacity to change, the *Montgomery* Court stated that “*Miller*’s central intuition” is that “children who commit even heinous crimes are capable of change.”⁶² A theme throughout these four cases is the concern that permanent exclusion through imprisonment or death is not warranted because children change as they mature. Because they change over time, a decision at sentencing to permanently exclude them from society is inherently untrustworthy and, thus, unwarranted.⁶³

To what extent did developmental psychology and neuroscience influence the Court’s shift away from a belief in the child-as-superpredator toward the belief in the child as likely to mature out of crime? Citing to amicus briefs from medical and psychological associations, the Court noted that neuroscience and behavioral studies confirm structural differences in children’s brains that impact their ability to control impulses and make well-reasoned decisions.⁶⁴ The amicus briefs discuss studies that demonstrate, *inter alia*, that the adolescent’s brain is in flux. The prefrontal

59. *Roper*, 543 U.S. at 573.

60. *Graham v. Florida*, 560 U.S. 48, 75 (2010).

61. *Miller*, 567 U.S. at 479–80 (quoting *Roper*, 543 U.S. at 573); *Graham*, 560 U.S. at 68. Although, in *Miller*, the Court retreated to allow for determinations of permanent incorrigibility, and thus life without parole, in the rare homicide case. For a discussion of the contradictions of *Miller*, see generally Erin Dunn, *Montgomery v. Louisiana: An Attempt to Make Juvenile Life Without Parole a Practical Impossibility*, 32 *TOURO L. REV.* 679 (2016).

62. *Montgomery v. Louisiana*, 136 S. Ct. 718, 736 (2016).

63. *See id.*

64. Brief for the American Medical Ass’n et al. as Amici Curiae in Support of Neither Party at *14–*15, *Graham v. Florida*, 560 U.S. 48 (2010) (Nos. 08-7412, 08-7621) (citing B.J. Casey et al., *The Adolescent Brain*, 28 *DEVELOPMENTAL REV.* 62, 65–68 (2008)).

cortex of the adolescent brain continues to develop throughout adolescence.⁶⁵ The prefrontal cortex is essential for assessing risk,⁶⁶ evaluating rewards,⁶⁷ controlling impulses,⁶⁸ evaluating consequences accurately and making related decisions;⁶⁹ assessing the truthfulness of others;⁷⁰ managing and utilizing working memory;⁷¹ responding to feedback;⁷² and making decisions based on moral values.⁷³ Out of these studies emerges a concept of the adolescent—and even the adolescent who has committed a serious crime—as not only less culpable but also as unformed and full of hidden capacity to grow. The developmental psychology and neuroscience rebutted the idea of the “superpredator”—the child whose actions demonstrate he is essentially not a child, both in terms of decision-making and capacity to change.

In this regard, using brain imaging technologies to demonstrate the structures and processes of adolescent brains was not transformational. Rather, the neuroscience and, in particular, neuroimaging of adolescent brains, functioned like the first photograph of the earth taken from space. Like the iconic “Blue Marble Shot” of the earth that persuaded many people to imagine themselves as global citizens, being able to see a neuroimage of the undeveloped frontal lobes of an adolescent brain confirmed what was long obvious to parents and teachers: adolescents have less capacity for decision-making. Choices made at age fifteen do not reflect who the adolescent will become in the future. The neuroimaging reinforces our

65. Brief for the American Medical Ass’n et al., *supra* note 64, at *16–18 (citing Samantha B. Wright et al., *Neural Correlates of Fluid Reasoning in Children and Adults*, 1 FRONTIERS HUMAN NEUROSCI., No. 8, 2008, at 7 (finding that important changes in the prefrontal cortex during adolescence lead to the development of logical reasoning abilities)).

66. Brief for the American Medical Ass’n et al., *supra* note 64, at *16–17 (citing Facundo Manes et al., *Decision-Making Processes Following Damage to the Prefrontal Cortex*, 125 BRAIN 624 (2002)).

67. Brief for the American Medical Ass’n et al., *supra* note 64, at *16–17 (citing J. O’Doherty et al., *Abstract Reward and Punishment Representations in the Human Orbitofrontal Cortex*, 4 NATURE NEUROSCI. 95 (2001); Robert D. Rogers et al., *Choosing Between Small, Likely Rewards and Large, Unlikely Rewards Activates Inferior and Orbital Prefrontal Cortex*, 20 J. NEUROSCI. 9029 (1999)).

68. Brief for the American Medical Ass’n et al., *supra* note 64, at *16–17 (citing Antoine Bechara et al., *Characterization of the Decision-Making Deficit of Patients with Ventromedial Prefrontal Cortex Lesions*, 123 BRAIN 2189, 2198–99 (2000)).

69. Brief for the American Medical Ass’n et al., *supra* note 64, at *17 (citing Wright et al., *supra* note 65 (finding that important changes in the prefrontal cortex during adolescence lead to the development of logical reasoning abilities)).

70. Brief for the American Medical Ass’n et al., *supra* note 64, at *17 (citing D. D. Langleben et al., *Brain Activity During Simulated Deception: An Event-Related Functional Magnetic Resonance Study*, 15 NEUROIMAGE 727 (2002)).

71. Brief for the American Medical Ass’n et al., *supra* note 64, at *17 (citing Beatrice Luna, *The Maturation of Cognitive Control and the Adolescent Brain*, in FROM ATTENTION TO GOAL-DIRECTED BEHAVIOR 249, 264 (Francisco Aboitiz & Diego Cosmelli eds., 2009)).

72. Brief for the American Medical Ass’n et al., *supra* note 64, at *17 (citing R. Elliott et al., *Differential Neural Response to Positive and Negative Feedback in Planning and Guessing Tasks*, 35 NEUROPSYCHOLOGIA 1395 (1997)).

73. Brief for the American Medical Ass’n et al., *supra* note 64, at *17 (citing Steve W. Anderson et al., *Impairment of Social and Moral Behavior Related to Early Damage in Human Prefrontal Cortex*, 2 NATURE NEUROSCI. 1032 (1999)); Jorge Moll et al., *Frontopolar and Anterior Temporal Cortex Activation in a Moral Judgment Task: Preliminary Functional MRI Results in Normal Subjects*, 59 ARQ NEUROPSIQUIATR 657 (2001)).

anecdotal experience while simultaneously challenging a folk belief about adolescent “superpredators.”

Many state legislatures were exposed to the same developmental neuroscience presented in amicus briefs to the U.S. Supreme Court in *Roper* and the *Graham* trilogy.⁷⁴ While juvenile justice reform efforts existed before the advent of the new neuroscientific findings on adolescent brain development, the neuroscience quickly became part of the legislative dialogue.⁷⁵ In his discussion of how “neuro-narratives” made by lobbyists influenced lawmaking, Francis Shen describes proposed legislation in New York to raise the age of criminal responsibility from sixteen to eighteen and to expand the jurisdiction of family court over juvenile delinquency matters.⁷⁶ Developmental neuroscience was explicitly referenced in the bills.⁷⁷ Some states amended their laws to require consideration of “brain development” in deciding whether a juvenile should be transferred from juvenile to adult court.⁷⁸ State regulatory and policy reforms to juvenile justice practices have also referenced developmental neuroscience.⁷⁹ The prevalence of reform efforts and supporting discussion of developmental neuroscience has been called “a new doctrine of youth, rooted in adolescents’ psychological and neuro-biological developmental status.”⁸⁰

Moreover, some state courts and legislatures appear to have been using developmental neuroscience to reconsider sentencing for a different age cohort—youthful offenders, defined as adults under the age of twenty-five.⁸¹ At least one state court has used empirical evidence of the changeability of young adults to extend its ban against life sentences to eighteen- to twenty-five-year-old defendants.⁸² After discussing the developmental neuropsychology justifying the U.S. Supreme Court’s conclusion that children are less culpable and more capable of change, the Illinois court rejected the bright-line distinction between an eighteen-year-old and a nineteen-year-old.⁸³ The court quoted a *Washington Post* editorial, which stated, “Research in neurobiology and developmental psychology has

74. Francis X. Shen, *Legislating Neuroscience: The Case of Juvenile Justice*, 46 *LOY. L.A. L. REV.* 985, 996–1000 (2013).

75. *Id.*

76. *Id.*

77. *Id.* at 1003–04.

78. See, e.g., N.M. STAT. ANN. § 32A-2-20(C)(5) (2019).

79. See, e.g., Shen, *supra* note 74, at 989, n.12 (citing DANA SWAYZE & DANETTE BUSKOVICK, MINN. DEP’T PUB. SAFETY, MINNESOTA JUVENILE DIVERSION: A SUMMARY OF STATEWIDE PRACTICES AND PROGRAMMING 50 (2012) (“Adolescent brain development research shows that the portions of the brain that govern reasoning and comprehending consequences are not fully developed in youth. As such, diversion opportunities for youth are especially important given diminished reasoning capacity . . .”).

80. Laura Cohen, *Freedom’s Road: Youth, Parole, and the Promise of Miller v. Alabama and Graham v. Florida*, 35 *CARDOZO L. REV.* 1031, 1056–57 (2014).

81. U.S. SENTENCING COMMISSION, *YOUTHFUL OFFENDERS IN THE FEDERAL SYSTEM I* (2017) (The Federal Sentencing Commission issued a report on federal youthful offender sentencing in response to “[r]ecent studies on brain development and age” and Supreme Court cases that have spurred policymakers to “reconsider how youthful offenders should be punished.”).

82. See *People v. House*, 72 N.E.3d 357, 387 (Ill. App. Ct. 2017).

83. *Id.* at 385–86.

shown that the brain doesn't finish developing until the mid-[twenties], far later than was previously thought."⁸⁴ This accords with policy arguments⁸⁵ and social science⁸⁶ on the eighteen- to twenty-five-year-old age cohort. The Illinois court decision serves as another example of how science can inform sentencing in ways that challenge older beliefs about human development.

There remain significant differences between children and adults in terms of culpability associated with retributive punishment and the effectiveness of deterrence. These differences have been stressed by the U.S. Supreme Court in the Eighth Amendment context.⁸⁷ As such, the Court's decisions in *Roper* and the *Graham* trilogy are not wholly applicable to adult sentencing. At the same time, the conceptual dichotomy between the child capable of change and the irreparably corrupt⁸⁸ child mirrors the dichotomy between adults who can be rehabilitated and those who are "career criminals"⁸⁹—a dichotomy that the next Part addresses.

II. FOLK BELIEFS AND THE SCIENCE OF ADULT CHANGE

A. The Idea of Permanent Criminality in Adulthood

In this Section, I will discuss the folk beliefs and now-dated science that supported the conclusion that adult change is the exception rather than the norm. I then discuss how this belief manifests in sentencing policy when people are designated as permanently criminal.

My claim that adults are perceived as unlikely to change requires some clarification. As discussed in Part I, some adults who are convicted of crimes are routed into rehabilitative programs. This practice, it would seem, affirms a belief in the human capacity to change. I argue, however,

84. *Id.* at 387 (quoting Vincent Schiraldi & Bruce Western, Opinion, *Why 21 Year-Old Offenders Should Be Tried in Family Court*, WASH. POST (Oct. 2, 2015), https://www.washingtonpost.com/opinions/time-to-raise-the-juvenile-age-limit/2015/10/02/948e317c-6862-11e5-9ef3-fde182507eac_story.html.) Vincent Schiraldi is a Professor at the Columbia School of Social Work, and Bruce Western is a Professor of Sociology at Harvard. Neither of the opinion editorial authors are neuroscientists but have studied the implications of neuroscience for their areas of expertise. This is a typical way in which courts assimilate scientific findings in their opinions. The citation in the opinion is to a newspaper article summarizing an understanding of scientific findings, rather than to the peer-reviewed scientific articles themselves.

85. For an example of a policy paper in the public sphere arguing for lawmakers to change criminal justice responses for emerging adults, see, e.g., MACARTHUR FOUND. RES. NETWORK ON L. AND NEUROSCIENCE, *HOW SHOULD JUSTICE POLICY TREAT YOUNG OFFENDERS?* 3 (2017) ("Researchers have found that in young adulthood, as in adolescence, areas of the brain that regulate functions like judgment and self-control are still not fully mature").

86. Elizabeth S. Scott et al., *Young Adulthood as a Transitional Legal Category: Science, Social Change, and Justice Policy*, 85 *FORDHAM L. REV.* 641, 642–43 (2016).

87. *Miller v. Alabama*, 567 U.S. 460, 471 (2012) (discussing how *Roper* and *Graham* establish that children are constitutionally different from adults for purposes of sentencing).

88. *Id.* at 479–80 (citing *Roper v. Simmons*, 543 U.S. 551, 573 (2005) (discussing difficulty determining which adolescent crime reflects "transient immaturity" and which crime reflects "irreparable corruption")).

89. The Federal Sentencing Guidelines define a "career offender" as anyone who has two prior felony convictions for crimes of violence or controlled substances. UNITED STATES SENTENCING COMMISSION, *GUIDELINES MANUAL* § 4B1.1(a) (2018).

that the rehabilitative track is reserved for those who Gottschalk refers to as the “non, non, nons”—“nonviolent, nonserious, and nonsexual offenders.”—who may benefit from reform efforts—and other criminal defendants for whom the prospect of reform is dimmer.⁹⁰ The “non, non, nons” benefit from a threshold decision that they are not characterologically criminal. Some ability to modify behavior is presumed for this group. The problem lies with the other category—those deemed characterologically criminal. While one could imagine a system in which only a select few of the “worst of the worst” are deemed characterologically criminal, the tendency of U.S. punishment regimes is to assign permanent criminality to most people convicted of a serious crime or of several crimes.⁹¹

Some scholars have argued that the practice of assuming inherent criminality is a hallmark of the U.S. criminal justice system and distinct from the English and European approach to crime.⁹² Although the language varies, the tendency to designate individuals and groups as characterologically criminal is certainly prevalent in U.S. discourse. Nicole Gonzalez Van Cleve, for example, documented how courtroom professionals in Chicago’s criminal courts describe defendants as belonging in one of two categories: the “mopes” or the “monsters.”⁹³ While the “mopes” might deserve a break, assistance, and special services, the “monsters” must be incapacitated. Of course, at any point the line between “mopes” and “monsters” can be moved to shrink the class of offenders entitled to second chances.⁹⁴

Whereas we may have grave misgivings about our ability to determine whether a child is permanently criminal, as expressed by the U.S. Supreme Court in the juvenile death- and life-sentence cases,⁹⁵ we are more confident in our ability to judge the criminality of adults. Indeed, implicit in identifying the difficulty in distinguishing the permanently incorrigible juvenile is the assumption that it *is* possible to distinguish between permanent and temporary criminality in adults. Faith in our ability to make such a distinction is evident in habitual offender statutes, life and death sentences, and other forms of exclusion that target defendants based on their crimes or criminal records.⁹⁶ If this is correct, the demarcation between the characterological criminal and the temporarily wayward

90. See GOTTSCHALK, *supra* note 17, at 165–67.

91. *Id.*

92. Kleinfeld, *supra* note 18 (“Implicit in American punishment is the idea that serious or repeat offenses mark the offenders as morally deformed people rather than ordinary people who have committed crimes”).

93. NICOLE GONZALEZ VAN CLEVE, CROOK COUNTY: RACISM AND INJUSTICE IN AMERICA’S LARGEST CRIMINAL COURT 69 (2016).

94. See Eaglin, *supra* note 16, at 210–13.

95. See *supra* Part I.

96. See *supra* Part I. Those judged characterologically criminal, of course, will rarely be the beneficiaries of criminal legal reform.

demonstrates a strong folk belief that adults do not change in ways contrary to their character, and that character can be known through observable actions.⁹⁷

A handful of studies demonstrate how people attempt to discern character when evaluating one another.⁹⁸ In psychology, belief in a discernable, stable core of adult character is called “lay dispositionism.”⁹⁹ People who implicitly subscribe to lay dispositionism may: (a) believe that behavior reflects a person’s true disposition; (b) believe that they can predict a person’s future behavior based on their knowledge of a person’s disposition; and (c) expect that other people’s behavior will be consistent in different situations.¹⁰⁰

The idea of stable character traits that shape a person’s behavior in predictable ways has philosophical antecedents as well. Virtue ethics, for example, posits that each person has a set character that is ascertainable through observing the person’s behavior, and which will remain stable over time.¹⁰¹ Thus, a person’s character can be known through their actions, and their future actions can be predicted because their character will not change.¹⁰²

Character, writ large, is a capacious concept that extends beyond what can be observed in behavior and personality.¹⁰³ Whether we have fixed character apart from its transitory indicators—morals, motivations, moods, thoughts, and actions—remains a subject of debate.¹⁰⁴ Addressing the broader concept of character is beyond the scope of this Article. Instead, I focus on the folk concept of character as a shorthand for one’s intuitive sense of the type of person someone is. Rather than offering an internal critique of character, I hold up this notion of character-as-type to the observable phenomena of behavior and personality.¹⁰⁵

97. JOHN M. DORIS, LACK OF CHARACTER: PERSONALITY AND MORAL BEHAVIOR 22–26 (2002) (referring to the belief that character is stable across time and context as “globalism”).

98. See generally Geoffrey P. Goodwin et al., *Moral Character Predominates in Person Perception and Evaluation*, 106 J. PERSONALITY & SOC. PSYCHOL. 148 (2013); Bogdan Wojciszke et al., *On the Dominance of Moral Categories in Impression Formation*, 24 PERSONALITY & SOC. PSYCHOL. BULL. 1251 (1998).

99. See LEE ROSS & RICHARD E. NISBETT, THE PERSON AND THE SITUATION 92 (1991).

100. Chi-yue Chiu et al., *Lay Dispositionism and Implicit Theories of Personality*, 73 J. PERSONALITY & SOC. PSYCHOL. 19, 19 (1997) (citations omitted) (citing various studies).

101. DORIS, *supra* note 97, at 16–17.

102. Heraclitus is attributed with the quote, “Man’s character is his fate.” HERACLITUS, FRAGMENTS 16 (John Burnet et al. trans. 1920).

103. In his article arguing that the instability of identity is relevant to criminal law, Mihailis E. Diamantis discusses character within the context of identity formation and change. Mihailis E. Diamantis, *Limiting Identity in Criminal Law*, 61 B.C. L. REV. (forthcoming 2019) (manuscript at 8–9) (available online at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3355575).

104. See, e.g., DORIS, *supra* note 97, at 5–6.

105. See discussion *infra* pp. 184–86.

Behavior is arguably more malleable than personality.¹⁰⁶ Yet our tendency is to assume that adult behavior will remain constant over time. “You can’t teach an old dog new tricks,” as the saying goes. Take, for example, addictive behaviors, which are characterized by a physiological dependence that motivates the addicted person to repeatedly seek out the substance.¹⁰⁷ Lay intuitions assume that adults will have more difficulty recovering from addiction as they age.¹⁰⁸ In one study, participants were asked to predict the success of drug treatment for addicts of different ages.¹⁰⁹ Study participants predicted that older adults would be less likely to recover from drug addiction than their younger counterparts.¹¹⁰ The researchers concluded that participants held implicit beliefs that younger, but not older, adults were capable of change, and this belief shaped whether the study participants supported programs designed to assist older adults.¹¹¹ The study supports the view that we predict people will be less capable of change as they get older, when, in fact, people of varying ages develop and recover from addictions.¹¹²

Lay dispositionalism does not exist in a vacuum.¹¹³ It was endorsed by early psychologists and neurologists. In 1890, psychologist William James wrote that personality is “set like plaster” by age thirty and will “never soften again.”¹¹⁴ This claim was the jumping-off point for a century of research aimed at identifying personality traits that remain constant throughout life.¹¹⁵ The stable constants of personality, defined broadly as “the dynamic organization within the individual of those psychophysical

106. Again, some defendants may be seen as being able to control their behavior regardless of their proclivities. This is part of the central argument for specific deterrence as a sentencing goal. The threat of punishment presumes the ability to control behavior, regardless of one’s proclivities, personality, or desire. See JEREMY BENTHAM, AN INTRODUCTION TO THE PRINCIPLES OF MORALS AND LEGISLATION 141–42 (Batoche Books 2000) (1781). Rehabilitation also presumes the ability to change, but, as I suggest throughout this Article, rehabilitation is reserved for select groups of people convicted of crimes who are not perceived as characterologically criminal. The modern penitentiary was premised on the idea of spontaneous moral reform or rehabilitation through occupational therapy. Chad Flanders, *The Supreme Court and the Rehabilitative Ideal*, 49 GA. L. REV. 383, 400–01 (2015).

107. Because the definition of addiction is contested, it is often described by its constituent behaviors. See Steve Sussman & Alan N. Sussman, *Considering the Definition of Addiction*, 8 INT’L J. ENVTL. RES. PUB. HEALTH 4025, 4025–30 (2011) (distilling five elements of addiction from meta-analysis of fifty-two studies).

108. Rebecca Neel & Bethany Lassetter, *Growing Fixed With Age: Lay Theories of Malleability Are Target Age-Specific*, 41 PERSONALITY & SOC. PSYCHOL. BULL. 1505, 1517 (2015).

109. *Id.*

110. *Id.*

111. *Id.* at 1519.

112. Birgit Koechl et al., *Age-Related Aspects of Addiction*, 58 GERONTOLOGY 540, 540 (2012) (“substance use, abuse and addiction are not limited to a specific age group”); see Rumi Kato Price et al., *Remission From Drug Abuse Over a 25-Year Period: Patterns of Remission and Treatment Use*, 91 AM. J. PUB. HEALTH 1107, 1111 (2001) (longitudinal study of drug users describing patterns of remission from age twenty through middle-age).

113. Lay belief in the fixed nature of dispositions, “lay dispositionism,” encompasses perspectives on personality. Jason E. Plaks et al., *Lay Theories of Personality: Cornerstones of Meaning in Social Cognition*, 3 SOC. & PERSONALITY PSYCHOL. COMPASS 1069, 1070 (2009).

114. 1 WILLIAM JAMES, THE PRINCIPLES OF PSYCHOLOGY 121 (1890).

115. DORIS, *supra* note 97, at 18–19 (explaining that, “[l]ike virtues, personality traits are supposed to be robust”).

systems that determine his characteristic behavior and thought,” became the subject of decades of research.¹¹⁶

Part of the attraction of the idea of stable personalities is the hope that we could reliably predict behavior. People should act in accordance with their personality. This “globalism” would mean that a trait has a high probability of consistently emerging in circumstances similar to those in which the trait first emerged.¹¹⁷ In other words, those espousing the view of stable personality traits believe that people will act the same in similar situations throughout their lives.¹¹⁸ If the hypothesis is proven, it supports a conceptualization of “personality as more or less coherent and integrated with reliable, relatively situation-resistant, behavioral implications.”¹¹⁹ So, for example, we could predict that a person who possesses the personality trait of introversion will avoid large crowds, and that this behavior will remain consistent over time because introversion is a fixed trait.

Nowhere was the claim that adults do not change more absolute than in the field of neurology before the advent of neuroimaging technology. Previously, neurologists contended that the brain was described as fully developed after the second decade of life and, thereafter, changed only through deterioration. As one author put it:

For four hundred years [the idea of changing an adult brain’s functioning] would have been inconceivable because mainstream medicine and science believed that brain anatomy was fixed. The common wisdom was that after childhood the brain changed only when it began the long process of decline; that when brain cells failed to develop properly, or were injured, or died, they could not be replaced.¹²⁰

Twentieth century neurologists searched for anatomical signs of neural growth and regeneration but lacked the instruments to observe brain structure and activity over time.¹²¹ This led the great neuroanatomist, Santiago Ramon y Cajal, to conclude that, in the adult brain, “[e]verything may die, nothing may be regenerated. It is for the science of the future to change, if possible, this harsh decree.”¹²² As I discuss later, this “harsh

116. GORDON W. ALLPORT, PATTERN AND GROWTH IN PERSONALITY 28 (1961); Cloninger et al., *A Psychobiological Model of Temperament and Character*, 50 ARCHIVES OF GEN. PSYCHIATRY 975, 975–76 (1993). It is beyond the scope to parse personality and character, which are defined very differently depending on the area of study. Here, I use character when the researchers use the term. It is measured using models like the Temperament and Character Inventory (TCI), which categorizes personality into three primary dimensions: “novelty seeking, harm avoidance, and reward dependence.” Personality as a predictor of behavior, and four character dimensions: “persistence, self-directedness, cooperativeness, and self-transcendence.” Both personality and character traits influence behavior.

117. DORIS, *supra* note 97, at 22–23.

118. *Id.* at 22.

119. *Id.* at 22–23.

120. NORMAN DOIDGE, THE BRAIN THAT CHANGES ITSELF, at xiii (2007).

121. *Id.* at 249.

122. SANTIAGO RAMON Y CAJAL, DEGENERATION AND REGENERATION OF THE NERVOUS SYSTEM 750 (Javier DeFelipe & Edward G. Jones eds., Raoul M. May, trans. 1991).

decree” has been debunked through technological advances in neuroscience.¹²³ Moreover, longitudinal studies of personality found many personality traits to be much less stable than the earlier generation of researchers predicted.¹²⁴ Not yet responsive to these changes in scientific thought, criminal law’s idea of adult permanence has had far-reaching sentencing consequences.

As I mention above, folk beliefs about permanence of character, which we can see were supported by older scientific claims about fixed personalities in adulthood, are an integral aspect of sentencing. It is the underlying assumption for deciding that someone’s crime reflects a character of “irreparable corruption.”¹²⁵ The word “irreparable,” taken from the Court’s decision in *Roper*, allows no hope of rehabilitation.¹²⁶ The belief that someone has a bad or criminal character correlates with punitiveness.¹²⁷ The idea that people do not change resulted in “bad-person attributions,” which, in turn, correlated with the desire to seek violent revenge against the “bad person.”¹²⁸ Whether we believe people can change directly impacts our punitive response to their harmful actions.

Because a defendant who is deemed to have made a criminal misstep that is considered out of character may be given a chance to rehabilitate, the task of the sentencing judge is to sort the hardened criminal from the temporarily wayward. To the temporarily wayward, the sentencing regime offers a path forward for rehabilitation. For the hardened criminal, the sentencing regime offers permanent exclusion. In both cases, something intrinsic and permanent to the defendant—criminality or lack-of-inherent-criminality—is the subject of attempted discernment.

Even if we accept the premise that some people may be characterologically criminal, identifying them is a difficult task. It is unclear whether anyone can be reliably categorized as permanently criminal. Criminology has made every effort to develop criteria for discerning the difference between defendants whose criminal behavior will persist and those whose criminal behavior will desist.¹²⁹

Some criminologists, for example, have looked for typologies of temperament that could explain persistence in antisocial or criminal behavior

123. See discussion *infra* pages 172–76.

124. See discussion *infra* pages 176–78.

125. *Miller v. Alabama*, 567 U.S. 460, 479–80 (2012) (citing *Graham v. Florida*, 560 U.S. 48, 68 (2010) & *Roper v. Simmons*, 543 U.S. 551, 573 (2005)).

126. See *Roper*, 543 U.S. at 573.

127. Chiu et al., *supra* note 100, at 934; Benjamin M. Gervy et al., *Differential Use of Person Information in Decisions About Guilt Versus Innocence: The Role of Implicit Theories*, 25 PERSONALITY & SOC. PSYCHOL. BULL. 17, 26 (1999) (discussing entity theorist belief in fixed moral character prompting question, “what type of person is this?” and making judgments of guilt accordingly).

128. David S. Yeager et al., *Adolescents’ Implicit Theories Predict Desire for Vengeance After Peer Conflicts: Correlational and Experimental Evidence*, 47 DEV. PSYCHOL. 1090, 1103 (2011).

129. See, e.g., Rolf Loeber et al., *Developmental Pathways in Disruptive Child Behavior*, 5 DEV. & PSYCHOPATHOLOGY 103, 129 (1993).

throughout life.¹³⁰ This typology of offenders relies on static correlates to predict lifetime offending.¹³¹ These correlates could be events that occurred during childhood, traits of the individual perceived constant throughout life, or biological traits. For example, Terrie Moffitt offered the theory of two types of people who commit crimes: those who persist throughout life and are, thus, “life-course persistent” (LCP), and those who mature out of crime and are thus “adolescent-limited” (AL).¹³² She then aimed to understand which variables in early life put a person at risk of being LCP.¹³³ The variables considered are static in that they relate to earlier events in the offender’s life that cannot be changed. The variables may correlate positively to offending rates or correlate negatively as “protective factors” that are associated with desisting from crime.¹³⁴

Developmental criminology has had little success predicting long-term reoffending based on static factors (like childhood development). Social scientists have attempted to identify variables that correlate with persistent criminality, but the variables do not account for future events that may change the person’s course, nor do they reliably predict future conduct. The discipline confesses that “long-term predictions are flawed and imperfect, and early risk factors do not always predict long-term criminal career outcomes.”¹³⁵

Clinical judgment of individual defendants fares no better. Experts called to testify about the future dangerousness of the defendant during the sentencing phase of death penalty trials cannot predict with accuracy and, instead, are limited to describing variables that correlate, on average, with

130. See Matt DeLisi & Michael G. Vaughn, *Foundation for a Temperament-Based Theory of Antisocial Behavior and Criminal Justice System Involvement*, 42 J. CRIM. JUST. 10, 11 (2014) (proposing a theoretical model of temperament along two interacting axes, “effortful control” and “negative emotionality”). DeLisi and Vaughn define temperament as “the stable, largely innate tendency with which an individual experiences the environment and regulates his or her responses to the environment.” *Id.*

131. *Id.*

132. Terrie E. Moffitt, *Adolescent-Limited and Life-Course-Persistent Antisocial Behavior: A Developmental Taxonomy*, 100 PSYCHOL. REV. 674, 679 (1993) [hereinafter Moffitt, *Taxonomy*]. Moffitt added more proposed types, or subtypes in later research. Terrie E. Moffitt, *Life-Course-Persistent Versus Adolescent-Limited Antisocial Behavior*, in 3 DEV. PSYCHOPATHOLOGY 570, 593 (Dante Cicchetti & Donald J. Cohen eds., 2006).

133. See Moffitt, *Taxonomy*, *supra* note 132, at 679.

134. See Julien Morizot & Lila Kazemian, *Introduction: Understanding Criminal and Antisocial Behavior Within a Developmental and Multidisciplinary Perspective*, in THE DEVELOPMENT OF CRIMINAL AND ANTISOCIAL BEHAVIOR 1, 7 (Julien Morizot & Lila Kazemian, eds., 2015). The developmental criminology approach should be distinguished from the sociological approach of the “life-course paradigm,” which focuses on “turning points” in life trajectories rather than early risk factors. *Id.* at 5.

135. *Id.* at 8 (citing JOHN H. LAUB & ROBERT J. SAMPSON, SHARED BEGINNINGS, DIVERGENT LIVES: DELINQUENT BOYS TO AGE 70 194 (2003)); Lila Kazemian et al., *Can We Make Accurate Long-Term Predictions About Patterns of De-escalation in Offending Behavior?*, 38 J. YOUTH ADOLESCENCE 384, 397 (2009).

recidivism.¹³⁶ Even the medical diagnosis of antisocial personality disorder is not coextensive with criminal conduct.¹³⁷

Actuarial methods that use risk assessment instruments have also had little success in predicting reoffense, particularly beyond a five-year period.¹³⁸ As John Pfaff puts it, our sentencing practices “incapacitate people longer than necessary and provide little deterrence in exchange.”¹³⁹ Moreover, neither clinical nor actuarial methods of prediction adequately account for future events that may change the defendant in unexpected ways.¹⁴⁰ While more recent research attempts to take into account dynamic variables that affect reoffense throughout the lifespan, these dynamic variables are often unpredictable life events like getting married or having a child.¹⁴¹ The many variables that shape the course of lives make it exceedingly difficult to reliably predict how people are likely to behave over the course of their lives.

The belief that people do not change also promotes a jaundiced view of rehabilitation programs. In 1973, an influential study of ex-offenders noted high recidivism rates regardless of participation in various kinds of prison programming and probationary interventions.¹⁴² Concluding that none of the interventions resulted in statistically meaningful reductions in recidivism, the study concluded that “nothing works.”¹⁴³ The study, of course, could not conclude that nothing works, only that the experience of prison, parole, and probation, as then practiced, did not rehabilitate the offenders included in the study.¹⁴⁴ Nevertheless, the phrase, “nothing works,” became a buzzword and rallying cry to defund rehabilitation programs. If “nothing works” to rehabilitate because people do not change, the goal of incarceration is incapacitation for as long as possible to protect public safety.¹⁴⁵ Within a few decades, the “nothing works” philosophy supplanted the rehabilitative model that guided early twentieth century

136. John F. Edens et al., *Predictions of Future Dangerousness in Capital Murder Trials: Is it the Time to “Disinvent the Wheel?”*, 29 *LAW & HUM. BEHAV.* 55, 56 (2005).

137. See Richard Howard, *Personality Disorders and Violence: What Is The Link?*, 2 *BORDERLINE PERSONALITY DISORDER & EMOTION DYSREGULATION*, 2015, at 1, 1.

138. See Feeley & Simon, *supra* note 10, at 466.

139. JOHN F. PFAFF, *LOCKED IN: THE TRUE CAUSES OF MASS INCARCERATION—AND HOW TO ACHIEVE REAL REFORM* 187 (2017).

140. See Nadin Beckmann & Robert E. Wood, *Editorial: Dynamic Personality Science. Integrating Between-Person Stability and Within-Person Change*, 8 *FRONTIERS IN PSYCHOL.*, Sept. 8, 2017, at 1, 4–5; discussion *infra* pp. 178–81.

141. Morizot & Kazemian, *supra* note 134, at 1–2.

142. Robert Martinson, *What Works?—Questions and Answers About Prison Reform*, *PUB. INT.*, Spring 1974, at 1, 22, 25, 48 (emphasis omitted). Flanders discusses whether and how much this was influential, but only in passing.

143. *Id.* at 48–49.

144. *Id.* at 49.

145. See, e.g., Simon, *supra* note 57, at 282, 293 (describing California’s current sentencing regime as one of “total” incapacitation” where incarceration is seen as “appropriate whenever an offender poses any degree of risk to the community”).

criminal justice practices like ensuring the availability of parole release and instituting educational programs in prisons.¹⁴⁶

To summarize the argument thus far, adjustments to folk beliefs about a criminal class of “superpredator” children, who were destined to live lives of crime, have led to modest but notable changes in thinking about sentencing children who commit serious crimes. The argument that children are not yet formed and capable of great changes through maturation, however, is usually contrasted with the fixed nature of adults. An adult who commits a serious crime, or who has a lengthy criminal record, demonstrates *who they are*. If this fixed nature is accurate, the sentencing task is to identify the characterological criminals and permanently incapacitate them.

Above, I laid out the folk theories and dated science underlying the idea of permanent criminality. In the next Section, I discuss studies that challenge the project of identifying the characterological criminal in a more fundamental way. The studies challenge the idea of permanence in personality and behavior.

B. Change in Adulthood

Research in multiple fields demonstrates that change in adulthood is the norm rather than the exception, and that these changes occur not just in response to the aging process but in response to environmental stimuli at any point in life. I argue that the idea of adult change, especially neuroplasticity as physical proof of adult change, has seeped into folk belief in some areas of discourse but not into the folk psychology of crime.

The past two decades have seen a major shift in scientific thinking about adult capacity to change. Neuropsychological testing has improved dramatically in the twentieth century, allowing researchers to finely differentiate and measure aspects of cognitive abilities using reliable clinical testing. Current research uses techniques such as neuroimaging in combination with controlled-study experimentation.¹⁴⁷ The link between behavior and “the functioning of brain systems” is thus more clearly established than in the past.¹⁴⁸ Below, I offer a sampling of studies from neuroscience, personality psychology, social-context studies, and criminology to demonstrate the broad range of research on the science of adult change.

146. For a clear articulation of the rehabilitative purposes of criminal sentencing, *see, e.g.*, *Williams v. New York*, 337 U.S. 241, 248–49 (1949); *see also* Francis A. Allen, *Criminal Justice, Legal Values and the Rehabilitative Ideal*, 50 J. CRIM. L. & CRIMINOLOGY 226, 230 (1959).

147. *See, e.g.*, Gregory R. Samanez-Larkin & Brian Knutson, *Reward Processing and Risky Decision Making in the Aging Brain*, in *THE NEUROSCIENCE OF RISKY DECISION MAKING* (Valerie F. Reyna & Vivian Zayas eds., 2014).

148. *See* Ruben C. Gur et al., *A Perspective on the Potential Role of Neuroscience in the Court*, 85 *FORDHAM L. REV.* 547, 553 (2016).

1. Neuroscience

Current research suggests that the brain is characterized by neuroplasticity, a phenomenon that can be observed in imaging studies in combination with clinical observations.¹⁴⁹ “Neuroplasticity [is] defined as the ability of the nervous system to respond to intrinsic or extrinsic stimuli by reorganizing its structure, function and connections.”¹⁵⁰ Studies demonstrate that environmental stimuli encourages neurogenesis and new neural connections.¹⁵¹ As adults learn new skills, areas of their brains required to complete the skills demonstrate structural changes.¹⁵² Equally impressively, when areas of the brain associated with certain functions are damaged,¹⁵³ other areas of the brain not associated with the function will often restructure themselves and assume the lost function.¹⁵⁴ This discovery significantly qualified the previous orthodoxy that different areas of the brain have highly specialized and discrete functions that, once damaged, cannot be recovered.¹⁵⁵

Neuroscientists have identified specific kinds of neuroplasticity, some of which do not involve the production of new neurons. For example, the brain evinces plasticity by reorganizing without gaining new neurons,

149. Steven C. Cramer et al., *Harnessing Neuroplasticity for Clinical Applications*, 134 BRAIN 1591, 1592 (2011).

150. *Id.*

151. See, e.g., DOIDGE, *supra* note 120, at 43.

152. See, e.g., Bogdan Draganski et al., *Changes in Grey Matter Induced by Training*, 427 NATURE 311, 311 (2004).

153. That the brain has discrete areas that accomplish certain tasks was first discovered in 1861 by Pierre Paul Broca. In an autopsy, he discovered that a patient’s language deficits correlated with damage to a discrete area of the patient’s brain. Gur et al., *supra* note 148, at 550. Discoveries of links between specific areas of the brain and demonstrable behaviors continued. Almost a century after Broca’s discovery, Roger Penfield mapped the motor system of his patients by observing how stimulating discrete areas of their contralateral hemispheres resulted in involuntary movement in different parts of their bodies and stimulating areas of their parietal lobes resulted in sensations in discrete parts of their bodies. *Id.* at 551–52. In the words of Nobel Prize winning neuroscientist, Eric Kandel, “When I was a medical student in the 1950’s, we were taught that the map of [Penfield’s] somatosensory cortex . . . [was] fixed and immutable throughout life.” ERIC R. KANDEL, IN SEARCH OF MEMORY: THE EMERGENCE OF A NEW SCIENCE OF MIND 216 (2006).

154. For an account of this discovery, see DOIDGE, *supra* note 120, at 53–65 (describing an early discovery of brain “remapping” by Michael Merzenich). Of course, neuroimaging also demonstrates when the brain in damaged beyond repair. In many cases, however, it remains difficult to predict outcomes. See, e.g., Jinxi Gao & Zhaocong Zheng, *Development of Prognostic Models for Patients with Traumatic Brain Injury: A Systematic Review*, 8 INT’L. J. CLINICAL & EXPERIMENTAL MED. 19881, 19882–83 (2015) (discussing most commonly used prognosis calculators for predicting outcomes of traumatic brain injury).

155. For an early example of a researcher challenging the theory of discrete brain functions, see Paul Bach-y-Rita, *Sensory Plasticity: Applications to a Vision Substitution System*, 43 ACTA NEUROLOGICA SCANDINAVICA 417, 417 (1967). For early studies conducted on rats that revealed an increased size and branching of neurons, see Marian C. Diamond et al., *Extensive Cortical Depth Measurements and Neuron Size Increases in the Cortex of Environmentally Enriched Rats*, 131 J. COMP. NEUROLOGY 357, 357 (1967); W.T. Greenough & F.R. Volkmar, *Pattern of Dendritic Branching in Occipital Cortex of Rats Reared in Complex Environments*, 40 EXPERIMENTAL NEUROLOGY 491, 492–93 (1973).

allowing new areas of the brain to engage in functions that were the province of other areas of the brain before the reorganization.¹⁵⁶ Neurons become bigger, or synaptic connections become more prolific and stronger, through practice.¹⁵⁷ Brain functions can become synchronized or desynchronized as the activity of one neuron affects the activity of another—a phenomenon popularized by Carla Shatz’ phrase “[neurons] that fire together wire together.”¹⁵⁸

The “rewiring” of the brain occurs in response to experience and can be “stable and long-lasting” if accompanied by anatomical changes.¹⁵⁹ In other instances, the rewiring may be the result of a temporary change in the “strength of [the] synaptic connections between neurons,” and not last long past the triggering experience.¹⁶⁰ So, for example, neuroscientists can observe, using magnetic resonance imaging (MRI), anatomical changes in the brain that occur when a person learns a new skill, such as juggling, and can measure the degree to which the changes endure or fade over time.¹⁶¹ Melissa Lau and Hollis Cline recount one of the most remarkable studies of brain change in response to training, that of the London taxi drivers.¹⁶² To be a taxi driver in London, the applicant must pass a test that demonstrates their thorough knowledge of more than twenty thousand streets and twenty thousand city landmarks.¹⁶³ Neuroimaging of applicants and taxi driver brains show neuroanatomical changes in response to learning. Once working as taxi drivers, they “have larger posterior hippocampi—a region involved in spatial memory” than the general public.¹⁶⁴

More surprisingly, neuroscience has confirmed that adult brains can undergo neurogenesis, meaning the formation of new neurons.¹⁶⁵ Neuronal stem cells that have the capacity to reproduce themselves and become neu-

156. See, e.g., Mellanie V. Springer et al., *The Relation Between Brain Activity During Memory Tasks and Years of Education in Young and Older Adults*, 19 NEUROPSYCHOLOGY 181, 181 (2005).

157. See Melissa Lau & Hollis Cline, *How You Use Your Brain Can Change Its Basic Structural Organization*, in THINK TANK 52, 56–57 (David J. Linden ed., 2018).

158. Carla J. Shatz, *The Developing Brain*, 267 SCI. AM. 60, 62 (1992). A word of caution is required here. The phrase alters the initial neuroscientific hypothesis, advanced by Donald Hebb, that a neuron firing can trigger the firing of a near-by neuron. Christian Keysers & Valeria Gazzola, *Hebbian Learning and Predictive Mirror Neurons for Actions, Sensations and Emotions*, 369 PHIL. TRANSACTIONS. ROYAL SOC’Y., 2014, at 1, 1–2. The hypothesis has been used clinically to create or decouple mental associations that produce certain impulses or behavior. See DOIDGE, *supra* note 120, at 174 (discussing how “[n]eurons that fire apart wire apart”).

159. Alison L. Barth, *Tool Use Can Instantly Rewire the Brain*, in THINK TANK, *supra* note 157, at 60, 62.

160. *Id.*

161. Draganski et al., *supra* note 152, at 311.

162. Lau & Cline, *supra* note 157.

163. *Id.* at 52.

164. *Id.* at 52 n.1 (citing numerous studies, the most recent of which is K. Woollett & E.A. Maguire, *Acquiring “the Knowledge” of London’s Layout Drives Structural Brain Change*, 21 CURRENT BIOLOGY 2109, 2109 (2011)).

165. See DOIDGE, *supra* note 120, at 251–53; Henriette van Praag et al., *Running Increases Cell Proliferation and Neurogenesis in the Adult Mouse Dentate Gyrus*, 2 NATURE NEUROSCIENCE 266, 267 (1999); Gerd Kempermann et al., *More Hippocampal Neurons in Adult Mice Living in an Enriched Environment*, 386 NATURE 493, 493 (1997).

rons were first discovered in 1998 in a region of the brain called the hippocampus.¹⁶⁶ The discovery has led to over two decades of research into the relationship between neurogenesis (new neural growth) and learning.¹⁶⁷ Early studies on mice and rats demonstrated that their brains could produce tens of thousands of new neurons in response to environmental stimulants like running wheels and tunnels.¹⁶⁸ A more recent, growing body of research explores neurological change in humans in response to experience.¹⁶⁹ Experience of all kinds has the capacity to change the brain. Research has demonstrated that participating in “psychotherapy can result in detectable changes in the brain.”¹⁷⁰ And researchers and clinicians are experimenting with experiential interventions as a supplement or alternative to traditional treatments for cognitive disorders.¹⁷¹

Critically, the social and emotional circuitry of the brain changes in response to new environments and experiences.¹⁷² Compassion training, for example, results in visible changes “in brain regions that are involved [in] social cognition and empathetic responses.”¹⁷³ These neurological changes in response to compassion training correlate with reduced aggressive behavior.¹⁷⁴ Likewise, “mindfulness [training] increases grey matter concentration in brain regions” associated with emotional regulation, empathy, and self-awareness.¹⁷⁵ These areas of neuroplasticity are relevant to sentencing because they demonstrate the potential for significant personal change in response to environment, presumably even among adults who have committed violent crimes.

A caveat is in order. Change is not always easy, and it may be particularly difficult when the person seeking to change is not exposed to environmental stimuli that encourage change. One of the reasons that brain change is difficult is that neural networks are self-reinforcing and self-sustaining.¹⁷⁶ This creates a physical structure for habit.¹⁷⁷ “Atop this mass

166. Peter S. Eriksson et al., *Neurogenesis in the Adult Human Hippocampus*, 4 NATURE MED. 1313, 1313, 1315 (1998); Hong-jun Song et al., *Neural Stem Cells from Adult Hippocampus Develop Essential Properties of Functional CNS Neurons*, 5 NATURE NEUROSCIENCE 438 (2002).

167. See DOIDGE, *supra* note 120, at 250–51.

168. See *Id.* at 251–53; van Praag et al., *supra* note 165, at 269; Kempermann et al., *supra* note 165, at 493, 495.

169. See Michael M. Merzenich et al., *Brain Plasticity-Based Therapeutics*, 8 FRONTIERS HUM. NEUROSCIENCE, no. 385, 2014, at 1, 1–2 (noting that “studies have now provided us with a first-level understanding of the rules of the processes that govern brain change, both as they account for a progression of the brain in a degrading, ‘aging,’ or distorting—or a strengthening, ‘rejuvenating,’ or corrective neurological direction.”).

170. Amit Etkin et al., *Toward a Neurobiology of Psychotherapy: Basic Science and Clinical Applications*, 17 J. NEUROPSYCHIATRY & CLINICAL NEUROSCIENCES 145, 155 (2005).

171. See Mor Nahum et al., *Principles of Neuroplasticity-Based Rehabilitation*, in 207 PROGRESS IN BRAIN RESEARCH 141, 156–57 (Michael M. Merzenich et al eds., 2013).

172. Federica Coppola, *Valuing Emotions in Punishment: An Argument for Social Rehabilitation with the Aid of Social and Affective Neuroscience*, NEUROETHICS, Dec. 4, 2018, at 1, 1.

173. *Id.*

174. *Id.*

175. *Id.*

176. Adrian M. Haith, *Almost Everything You Do is a Habit*, in THINK TANK, *supra* note 157, at 177, 181.

177. *Id.*

conglomeration of habits sits a thin sliver of cognitive deliberation that steers only the highest-level decisions that we ever need to make. And without habits, it would be quickly overwhelmed.”¹⁷⁸ As neuroscientist Richard Davidson stresses, we do not know the limits of what can and cannot change in the human brain, and this state of unknowing demands our humility.

Critics of neuroscience’s influence on criminal law are right to caution against overconfidence and overclaiming.¹⁷⁹ We still know very little about how the brain works, and today’s scientific findings may be rebutted by tomorrow’s research. But, even legal scholars who caution that criminal law should not jettison its ideas about criminal culpability based on a nascent field of neuroscience agree that “[b]rain maturation continues into the mid-twenties and the brain is plastic and always changing.”¹⁸⁰ The finding of general neuroplasticity serves to decrease our confidence in predicting human behavior over time.

2. Personality Psychology

Cognitive and social science studies accord with the finding of neuroplasticity by demonstrating that personality traits, once thought to be immutable in adulthood, change throughout life. While traditional wisdom held that adolescent personality shifts into fixed personality in adulthood, studies demonstrate that personality traits continue to change throughout the lifespan.¹⁸¹ To be sure, childhood and adolescence are a time of dramatic changes in the “Big Five” personality traits—extroversion, agreeableness, conscientiousness, neuroticism, and openness to experience.¹⁸² Studies show, however, that agreeableness and conscientiousness tend to increase in middle age; while extroversion and neuroticism tend to decrease.¹⁸³

The results of these studies of personality trait change in adults are ground-breaking. As one researcher stated, the fact that “most mean-level personality-trait change occurs between ages [twenty] and [forty] . . . contradicts the widely held perspective that the most interesting years for studying personality development are either early or late in life” and “opens a

178. *Id.*

179. *See, e.g.*, Stephen J. Morse, *Brain Overclaim Redux*, 31 *LAW & INEQ.* 509, 509–15 (2013).

180. *Id.* at 520–21 (citing Brief for the American Psychological Association, American Psychiatric Association, National Association of Social Workers, and Mental Health America as Amici Curiae Supporting Petitioners at 24–27, *Graham v. Florida*, 558 U.S. 811 (2009) (Nos. 08-7412, 08-7621), 2009 WL 2236778); C. Antoinette Clarke, *Bridging the Gap: An Interdisciplinary Approach to Juvenile Justice Policy*, 56 *DEPAUL L. REV.* 927, 934 (2007).

181. Brent W. Roberts et al., *Patterns of Mean-Level Change in Personality Traits Across the Life Course: A Meta-Analysis of Longitudinal Studies*, 132 *PSYCHOL. BULL.*, No. 1, 2006, at 1, 13 (meta-analysis of ninety-two studies demonstrating a mean-level change in 75% of personality traits in middle age).

182. Christopher J. Soto et al., *Age Differences in Personality Traits from 10 to 65: Big Five Domains and Facets in a Large Cross-Sectional Sample*, 100 *J. PERSONALITY & SOC. PSYCHOL.* 330, 340–41 (2011).

183. Sanjay Srivastava et al., *Development of Personality in Early and Middle Adulthood: Set Like Plaster or Persistent Change?*, 84 *J. PERSONALITY & SOC. PSYCHOL.* 1041, 1045–47 (2003).

new area of focus in developmental science.”¹⁸⁴ Further, the studies demonstrate that humans remain an “open system” throughout life, susceptible to change at the fundamental level of personality.¹⁸⁵

Particularly relevant to this discussion is that the personality change in adulthood trends in a prosocial direction and that most people become “more confident, warm, responsible, and calm.”¹⁸⁶ Other psychological studies have found an age-related “positivity effect,” whereby adults increase their optimism, possibly in response to realization of their increasingly limited lifespan.¹⁸⁷ These changes in personality and outlook seem likely to account for at least some of the reduced participation in criminal activity in the second half of life.

To be sure, some of the psychological and cognitive studies on adult development have contradictory results. This is particularly true of studies involving “older adults”—a term of variable meaning in the literature but typically including people age sixty-five and older. The studies attempt to define which areas of functioning deteriorate, improve, or remain constant.¹⁸⁸ The results are mixed. Some clinical studies show that emotional regulation “may be more automatic” and require less effort with age.¹⁸⁹ Traits that influence emotional regulation, like the ability to ignore negative stimuli and focus on positive stimuli, have been shown to increase with age.¹⁹⁰ Other studies, however, do not demonstrate heightened emotional regulation among older adults, at least not in the laboratory setting.¹⁹¹ Even data derived from neuroimaging and autopsies varies regarding whether the brain changes in ways that will effect emotional functioning.¹⁹²

Results of studies on the ability to empathize with others are also mixed and appear to depend on study variables such as the age of the cohort of older adults.¹⁹³ A Massachusetts Institute of Technology (MIT)

184. Brent W. Roberts & Daniel Mroczek, *Personality Trait Change in Adulthood*, 17 CURRENT DIRECTIONS PSYCHOL. SCI. 31, 33 (2008).

185. *Id.*

186. *Id.*

187. Laura L. Carstensen et al., *Emotional Experience Improves with Age: Evidence Based on over 10 Years of Experience Sampling*, 26 PSYCHOL. & AGING 21, 22, 29 (2011); Laura L. Carstensen et al., *The Influence of a Sense of Time on Human Development*, 312 SCI. 1913, 1913, 1915 (2006); Laura L. Carstensen & Joseph A. Mikels, *At the Intersection of Emotion and Cognition: Aging and the Positivity Effect*, 14 CURRENT DIRECTIONS PSYCHOL. SCI. 117, 118–19 (2005).

188. Mara Mather, *The Affective Neuroscience of Aging*, 67 ANN. REV. PSYCHOL. 213, 213 (2016).

189. Gregory R. Samanez-Larkin & Laura L. Carstensen, *Socioemotional Functioning and the Aging Brain*, in THE OXFORD HANDBOOK OF SOCIAL NEUROSCIENCE 507, 515–16 (Jean Decety & John T. Cacioppo eds., 2011) (describing how changes in striatal, insular, and prefrontal function in adult brains may cause affective processing to remain intact in older adults).

190. Mara Mather & Laura L. Carstensen, *Aging and Motivated Cognition: The Positivity Effect in Attention and Memory*, 9 TRENDS COGNITIVE SCI. 496, 496 (2005).

191. For a discussion of the literature, see Mather, *supra* note 188, at 222 (discussing theories of emotional regulation that suggest the ability to regulate emotions differs when applied in a controlled laboratory environment).

192. *Id.* at 215.

193. *Id.* at 224–25.

study, reported in the *Boston Globe* in 2015, measured cognitive skills in over 50,000 adult study participants, and found, among many findings, that the ability to identify the emotional state of another person by looking at their eyes is highest from age forty to sixty.¹⁹⁴ The significance of this finding to sentencing could be thought of in terms of a thirty-five-year-old defendant whose crime appears to reflect his lack of empathy. Although well into adulthood, we can predict that he is statistically likely to become more empathetic as he enters his next decade of life. These developmental changes that occur in middle age cast doubt on the current sentencing framework, which draws a bright line between the capacity of children and the capacity of adults to change.

I have highlighted the limits of the research on the psychology of personality traits in order not to overstate the claim of adult capacity to change. The truth probably lies, as it usually does, somewhere in the middle. “There is both stability and variability in personality.”¹⁹⁵ Aware that personality traits are mutable, researchers have moved on to studying which aspects of personality are most likely to fluctuate with context and relationships.¹⁹⁶ The result of this focus is a growing body of research that demonstrates long-term personality changes in response to “life circumstances.”¹⁹⁷

Many in the fields of personality psychology—both trait theorists and social-cognitive theorists—concede that there is both stability and variability in personality, and researchers note that both long- and short-term variability are important areas of study.¹⁹⁸ They describe personality as somewhat stable, but with this qualification:

Whilst individuals differ from each other in predictable ways—differences that can sufficiently be described by broad trait constructs such as neuroticism, conscientiousness, agreeableness, openness, extraversion, and core self evaluations—they also *vary systematically in the*

194. Kay Lazar, *Older and Wiser? Some Brain Functions Improve as We Age*, BOSTON GLOBE (Mar. 5, 2015, 10:39 PM), <https://www.bostonglobe.com/metro/2015/03/05/maybe-aging-isn-bad-after-all/VG7Jr73FstxcTl2h29CgRL/story.html>. The reported study is, Joshua K. Hartshorne & Laura T. Germine, *When Does Cognitive Functioning Peak? The Asynchronous Rise and Fall of Different Cognitive Abilities Across the Lifespan*, 26 PSYCHOL. SCI. 433, 433 (2015) (finding “considerable heterogeneity” in cognitive functioning across the lifespan, with some cognitive skills peaking after age forty); cf. Mather, *supra* note 188, at 222–23 (suggesting that older adults’ ability to recognize emotions, like fear and sadness, from the facial expressions of others declines with age).

195. Beckmann & Wood, *supra* note 140, at 2.

196. See, e.g., John F. Rauthmann et al., *Principles of Situation Research: Towards a Better Understanding of Psychological Situations*, 29 EUR. J. PERSONALITY 363, 364 (2015) (discussing studies that analyze the effect that differing situations have on personality and outlines the nomenclature used in the studies).

197. Beckmann & Wood, *supra* note 140, at 5 (citing Esther Niehoff et al., *International Sojourn Experience and Personality Development: Selection and Socialization Effects of Studying Abroad and the Big Five*, 112 PERSONALITY INDIVIDUAL DIFFERENCES 55, 55–56 (2017)); Wiebke Bleidorn et al., *Life Events and Personality Trait Change*, 86 J. PERSONALITY 83, 83–84 (2016); Oliver Lüdtke et al., *A Random Walk Down University Avenue: Life Paths, Life Events, and Personality Trait Change at the Transition to University Life*, 101 J. PERSONALITY & SOC. PSYCHOL. 620, 621 (2011).

198. Beckmann & Wood, *supra* note 140, at 2.

ways they respond to situations they encounter and change as a person over time."¹⁹⁹

This "integrated approach to personality"²⁰⁰ is currently the subject of diverse empirical studies. Rather than viewing personality traits as fixed, leading to predictable behaviors, the new studies catalogue contingent personality traits, which are sensitive to how people change in response to context.²⁰¹

It is likely that other variables relevant to criminal sentencing will be explored in future studies of adult development, such as the relationship between addiction recovery and age. We currently lack extensive literature on addiction recovery trends throughout the human lifespan, but a survey of the existing literature suggests that adults have more "recovery capital," meaning "the amount and quality of resources that one can bring to bear to initiate and sustain recovery from addiction."²⁰² Moreover, almost seventy percent of adults recover without treatment, probably in response to the accretion of negative consequences of addiction over the years.²⁰³ More research is needed, however, before anything can be said with confidence about the relationship between age and prospects of long-term recovery from substance abuse.²⁰⁴

3. The Contextual Nature of Behavior

Related to the idea that people change over time is the idea that behavior is a product of external as well as internal factors. Situationist research aims to understand how much human behavior results from environmental prompts rather than internal prompts, like character.²⁰⁵ Some early situationist experiments made quite a splash.²⁰⁶ The Stanford Prison Experiment, for example, demonstrated that average college students quickly became violent, abusive, and corrupt when involved in an immersive role-play experiment in which they played the role of prison guards

199. *Id.* at 1 (emphasis added).

200. *Id.*

201. *Id.* at 5 (citing Jason L. Huang & Ann Marie Ryan, *Beyond Personality Traits: A Study of Personality States and Situational Contingencies in Customer Service Jobs*, 64 PERSONNEL PSYCHOL. 451, 481 (2011)).

202. William L. White, *Recovery Across the Life Cycle from Alcohol/Other Drug Problems*, 24 ALCOHOLISM TREATMENT Q. 185, 190 (2006) (the recovery advantage wanes in "older" adults, but the author does not specify what age he considers "older.") (citing ROBERT GRANFIELD & WILLIAM CLOUD, *COMING CLEAN: OVERCOMING ADDICTION WITHOUT TREATMENT* 179 (N.Y. Univ. Press) (1999)).

203. *See id.* at 193 (citing K.K. Schutte et al., *A Ten-Year Follow-Up of Older Former Problem Drinkers: Risk of Relapse and Implications of Successfully Sustained Remission*, 64 J. STUD. ON ALCOHOL 367, 373 (2003)).

204. *See White, supra* note 202, at 196.

205. DORIS, *supra* note 97, at 28–61 (discussing situationist studies that challenge the belief that people have fixed characters leading to predictable behavior).

206. For example, the Stanford Prison Experiment was made into two movies and inspired a third. *DAS EXPERIMENT* (Samuel Goldwyn Films 2001) (inspired by the Stanford Prison Experiment); *THE STANFORD PRISON EXPERIMENT* (IFC Films 2015) (documentary re-enacting the experiment); *QUIET RAGE: THE STANFORD PRISON EXPERIMENT* (Stanford University 1988) (documentary about the experiment).

guarding other students who were playing the role of prisoners.²⁰⁷ Stanley Milgram conducted another set of famous experiments in which college students followed orders to deliver an electrical shock to another student, despite feedback that the shocks were extremely painful.²⁰⁸ Later studies were unsuccessful in identifying personality traits that correlated with whether a study participant would obey or defy orders to torture a fellow student.²⁰⁹ It seems, rather, that the students' behavior was shaped not by their personalities but by the situation—the context of the experiment.

Of course, these experiments are subject to the same critique as all laboratory studies of human behavior: whether the studies have ecological validity. Will people behave the same way in real life? Perhaps. Field studies of behavior during war and genocide confirm that people's behavior changes dramatically in radically different social contexts.²¹⁰ Pen-and-paper psychological tests appear to depend on context as well. Even the Myers Briggs test, which I took as a law student to learn if I had the suitable personality to be a trial lawyer,²¹¹ does not produce consistent results in the same person across time and situation.²¹²

To be clear, the situational studies of behavior do not deny the correlation between traits and behavior.²¹³ Rather, they demonstrate less correlation than one would expect if personality traits steered human behavior.²¹⁴ Context and situation seem to influence behavior in dramatic ways. Perhaps because of the salience of context, the aggregate correlation between traits and behavior does not result in a reliable way to predict individual behavior across time and context.²¹⁵

More recent neuroscience studies go further to demonstrate long-lasting changes to the structure and functioning of the brain based on environmental stimuli.²¹⁶ Neuroplasticity suggests that, insofar as the changes in our brain manifest stability, we change in our very biology and structure.²¹⁷ Changes in the brain are often “precipitated by a person's experience with

207. Ali Banuazizi & Siamak Movahedi, *Interpersonal Dynamics of a Simulated Prison: A Methodological Analysis*, 30 AM. PSYCHOLOGIST 152, 152 (1975); QUIET RAGE, *supra* note 206.

208. STANLEY MILGRAM, OBEDIENCE TO AUTHORITY 17–18 (1974); Stanley Milgram, *Behavioral Study of Obedience*, 67 J. ABNORMAL & SOC. PSYCHOL. 371, 371–72 (1963).

209. Alan C. Elms & Stanley Milgram, *Personality Characteristics Associated with Obedience and Defiance Toward Authoritative Command*, 1 J. EXPERIMENTAL RES. PERSONALITY 282, 288 (1966).

210. See, e.g., Charles H. Anderton, *Genocide: Perspectives from the Social Sciences* 15–21 (College of the Holy Cross, Department of Economics, Working Paper No. 15-09, 2015).

211. The test suggested my personality was incompatible with trial lawyering, but I became a trial lawyer anyway and liked it.

212. Malcolm Gladwell, *Personality Plus*, NEW YORKER, Sept. 20, 2004, at 1, 42.

213. DORIS, *supra* note 97, at 73.

214. See *id.* at 75.

215. *Id.* at 73–75.

216. See *supra* Part II.C.1.

217. See Stephanie Plamondon Bair, *Malleable Rationality*, 79 OHIO ST. L.J. 17, 34 (2018) (noting that “the decision-maker himself has changed between two points in time.”).

the outside world.”²¹⁸ Our ability to make decisions is thus “malleable and dependent” on our experiences.²¹⁹ We do not yet know much about what environmental factors change people. Yet, some research demonstrates that motivated people can change even seemingly stable aspects of their personality with the proper, helpful interventions.²²⁰

4. Criminology: The Age-Crime Curve

While social science and neuroscience studies have demonstrated how adults change in response to learning and environment, criminology has long noted that criminal behavior tends to decrease in the second half of life.²²¹ Although the age-crime curve has been the subject of some scholarly controversy, centering on whether it is as “invariant” and whether it is as significant as it appears,²²² its general trend has been documented for more than 100 years.²²³

Reduced rates of reoffending begin, on average, in the fourth decade of life.²²⁴ The U.S. Sentencing Commission’s data on rearrest rates are instructive. While more than half of offenders under thirty years old will be rearrested, the rate of rearrest continues to drop throughout the second half of life. Of defendants in their forties, 35.9% reoffend. However, just 21.7% of defendants in their fifties reoffend.²²⁵ Even people who commit violent crimes tend to desist from violent crime within five to ten years, with cessation usually occurring in the mid to late thirties.²²⁶ This data has the potential to shift our views on incapacitation and rehabilitation as responses to crime.²²⁷

218. *Id.* at 30 (citing Draganski et al., *supra* note 152, at 133 (discussing a study that demonstrates learning to juggle can result in changes to the grey and white matter of the brain)).

219. Bair, *supra* note 217, at 32.

220. Sander Hermsen et al., *Using Feedback Through Digital Technology to Disrupt and Change Habitual Behavior: A Critical Review of Current Literature*, 57 COMPUTERS HUM. BEHAV. 61, 64–65 (2016).

221. Raymond E. Collins, *Onset and Desistance in Criminal Careers: Neurobiology and the Age-Crime Relationship*, 39 J. OFFENDER REHABILITATION, no. 3, 2004, at 2–3 (summarizing a century of scholarship establishing the “age-crime curve”).

222. Matt DeLisi, *Age-Crime Curve and Criminal Career Patterns*, in THE DEVELOPMENT OF CRIMINAL AND ANTISOCIAL BEHAVIOR, *supra* note 134, at 51, 51–53 (discussing various challenges to, and explanations of, the age-crime curve).

223. Collins, *supra* note 221 (summarizing a century of scholarship establishing the “age-crime curve”).

224. See U.S. SENTENCING COMM’N, RECIDIVISM AMONG FEDERAL OFFENDERS: A COMPREHENSIVE OVERVIEW 23 (2016) (finding that, of prisoners released or put on probation in 2005, prisoners under age twenty-one had a 67.6% rearrest rate and prisoners over age sixty had a 16.0% rearrest rate). There are exceptions to the age-crime curve. For example, Michael O’Hear notes a significant number of Wisconsin prisoners who were convicted after the age of sixty for sex crimes involving children. Michael M. O’Hear, *Who Are the Old Folks in Prison? Part II*, MARQ. U. L. SCH. FAC. BLOG (Jan. 13, 2019), <https://law.marquette.edu/facultyblog/2019/01/who-are-the-old-folks-in-prison-part-ii>.

225. U.S. SENTENCING COMM’N, *supra* note 224, at A-1.

226. Dana Goldstein, *Too Old to Commit Crime?*, N.Y. TIMES (Mar. 20, 2015), <https://www.nytimes.com/2015/03/22/sunday-review/too-old-to-commit-crime.html> (citing Alfred Blumstein’s research at Carnegie Mellon).

227. See *id.*

The age-crime curve creates a “stinging irony” for people sentenced to life in prison as career criminals or habitual offenders.²²⁸ As John Pfaff notes, by the time the person has enough prior convictions to qualify for sentencing enhancements as a recidivist, the person is much more likely to be on the verge of aging out of his peak offending years and, in fact, may already be on the declining side of the bell curve. “Locking them up and throwing away the key ignores the fact that someone who acts violently when he’s eighteen years old may very well be substantially calmer by the time he’s thirty-five.”²²⁹

Desistance with age, however, is not the only type of change that occurs in adulthood. If the studies demonstrating neuroplasticity and personality change discussed above are correct, criminology may find other correlates with crime desistance—correlates that relate to environmental stimuli and learning.

Not surprisingly, some researchers studying factors that might lead a person to persist or desist from committing crimes have turned their attention to recent developments in neuroscience in order to better understand changes in behavior throughout the lifespan.²³⁰ New criminal justice theories like the “social control theory” consider the relationship between the age-crime curve and “normal neurochemistry.”²³¹ Neurotransmitters associated with aggression, such as dopamine, decrease with age, while neurotransmitters that moderate aggression, such as serotonin, increase with age.²³² Normal neurobiology thus provides another component that is shifting the paradigm of developmental criminology.²³³

New directions in developmental criminology include a move away from typology of offenders toward the study of situational factors associated with criminal behavior at different ages.²³⁴ The clearest departure

228. See PFAFF, *supra* note 139, at 192.

229. See *id.* at 191.

230. See, e.g., Anthony Walsh, *Crazy By Design: A Biosocial Approach to the Age-Crime Curve*, in *BIOSOCIAL CRIMINOLOGY: NEW DIRECTIONS IN THEORY AND RESEARCH* 154, 160 (Anthony Walsh & Kevin M. Beaver eds., 2008); Daniel M. Blonegin, *Explaining the Relationship Between Age and Crime: Contributions from the Developmental Literature on Personality*, 30 *CLINICAL PSYCHOL. REV.* 89, 89 (2010); Collins, *supra* note 221, at 12 (discussing whether recent neural theories provide a context for understanding criminal behavior through the human lifespan).

231. Collins, *supra* note 221, at 12–15 (discussing the possible relationship between age-related decline in neurotransmitters, such as norepinephrine and Gamma-Aminobutyric Acid, with desistance from crime).

232. *Id.* at 5.

233. See *id.* at 16.

234. See, e.g., Per-Olof H. Wikström, *The Social Origins of Pathways in Crime: Towards a Developmental Ecological Action Theory of Crime Involvement and Its Changes*, in *INTEGRATED DEVELOPMENTAL AND LIFE-COURSE THEORIES OF OFFENDING* 211, 212–15 (David P. Farrington ed., 2005) (explaining the Situational Action Theory that the decision to break moral rules is influenced by situational factors such as temptation and provocation, which interact with individual factors, such as choice and perception); Terrence P. Thornberry & Marvin D. Krohn, *Applying Interactional Theory to the Explanation of Continuity and Change in Antisocial Behavior*, in *INTEGRATED DEVELOPMENTAL AND LIFE-COURSE THEORIES OF OFFENDING*, *supra*, at 183, 190 (evaluating the significance of factors such as neuropsychological deficits and criminogenic environments on antisocial behavior at different ages of childhood and young adulthood).

from a typology of offenders toward a situational view of offending is offered by Sampson and Laub.²³⁵ They are highly critical of the vein of developmental criminology that uses early life events as static risk factors to predict that a person is the type to persist in crime throughout his life.²³⁶ Instead, they study why people stop committing crimes in response to important life events, such as starting a family and obtaining work.²³⁷ Because life events can lead to changed behavior, they caution against predicting recidivism, and encourage research on events and contexts that might lead people from different backgrounds and circumstances to desist from criminal behavior.²³⁸ Their work may understate the strength of research correlating static risk factors from childhood with adult offending behavior.²³⁹ But their point may be, more generally, that earlier research does not account for all of the dynamic ways in which life events can change people. To ignore these dynamic factors that produce change is to miss an opportunity to develop a body of knowledge about what works to increase desistance from crime.²⁴⁰

A clear contribution of the newer criminology studies is its conclusion that it is “never too late to intervene,” meaning that, if dynamic risk factors that occur later in life can be altered, people with persistent patterns of criminal conduct may change.²⁴¹ This is especially important given the discipline’s confession that “long-term predictions are flawed and imperfect, and early risk factors do not always predict long-term criminal career outcomes.”²⁴²

5. Revolution in Our Theory of Change

The above survey consists of only a fraction of the research that suggests a revolution in how scientists think about adult personality traits and the capacity to change. Social science research demonstrates the malleability and contextual aspects of personality and behavior, and neuroplasticity now supplies a concrete view of brain changes.

235. Robert J. Sampson & John H. Laub, *A General Age-Graded Theory of Crime: Lessons Learned and the Future of Life-Course Criminology*, in INTEGRATED DEVELOPMENTAL AND LIFE-COURSE THEORIES OF OFFENDING, *supra* note 222, at 165, 165.

236. *See id.* at 179.

237. *Id.* at 167–70.

238. *See id.* at 179–80.

239. *See* David P. Farrington et al., *The Development of Offending From Age 8 to Age 50: Recent Results from the Cambridge Study in Delinquent Development*, 92 MONATSSCHRIFT FÜR KRIMINOLOGIE UND STRAFRECHTSREFORM 160, 167, (2009) (finding that early risk factors are significant in predicting who would persist in criminal behavior in later life).

240. *See* Robert J. Sampson & John H. Laub, *A Life-Course View of the Development of Crime*, 602 ANNALS AM. ACAD. POL. & SOC. SCI. 12, 13–14 (2005) (arguing against using childhood and adolescent risk factors to create typologies of who will persist or desist from crime). “What works” is a reference and rejoinder to Martinson’s claim that nothing works to reduce recidivism. Robert Martinson, *What Works?—Questions and Answers About Prison Reform*, NATIONAL AFFAIRS, no. 41, Spring 1974, at 25 (emphasis omitted).

241. Morizot & Kazemian, *supra* note 134, at 8.

242. *Id.*

It is beyond the scope of this Article to describe every area of study that challenges the belief that adults are fixed and incapable of change. To be sure, many studies report contradictory findings on the trajectory of change, and not all changes represent growth. Moreover, we should proceed with a caveat always in place when generalizing about a group of people, like an age cohort. One should expect great variability among adults of different age groups. This variability has been particularly evident in studies of adult risk-taking.²⁴³ We expect people to become more risk-averse as they age, but some studies of gambling and risky financial investments demonstrate that older people are no less likely to take risks than younger people.²⁴⁴ Moreover, older adults demonstrate high rates of variability in their willingness to take risks.²⁴⁵

But, at the very least, the studies demonstrate that change continues throughout life, and environmental stimuli are pivotal in determining the direction of certain changes. Given that change is influenced by environmental stimuli and variables among individuals, it would be difficult to predict that a thirty-year-old defendant will not be a different person at forty-five years old. It seems likely that he *will* change, and in ways we cannot predict. Yet we can say, generally, that he will be less likely to commit a crime.

As Thomas Kuhn argued, scientific revolutions often follow a pattern in which a scientific theory is called into question by anomalies in research findings.²⁴⁶ These anomalies can produce a kind of crisis in the field of study, characterized by a “proliferation of competing articulations, the willingness to try anything, the expression of explicit discontent, the recourse to philosophy and debate over fundamentals . . .”²⁴⁷ If the anomalies cannot be explained within the framework of the scientific theory, a new theory forms within the relevant scientific community to accommodate the anomalies.²⁴⁸ The new theory will survive if it is logically coherent, broad in scope, explains the data, yields accurate predictions, and invites development of further areas of study.²⁴⁹

While I am not positioned to claim that the relevant scientific communities are undergoing what Kuhn called a “paradigm shift,” I suggest a similar “revolution” is taking place in popular, folk beliefs about human

243. Rui Mata et al., *Age Differences in Risky Choice: A Meta-Analysis*, 1235 ANNALS N.Y. ACAD. SCI. 18, 27 (2011) (describing variability in risk-taking behaviors among all age cohorts but noting no marked reduction in risk-taking behavior in older adults).

244. *See id.* at 26–27.

245. *See* Ben Eppinger et al., *Better or Worse than Expected? Aging, Learning, and the ERN*, 46 NEUROPSYCHOLOGIA 521, 536 (2008).

246. *See* THOMAS S. KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS* 91 (1970) (4th ed. 2012); *see also* Margaret G. Farrell, *Daubert v. Merrell Dow Pharmaceuticals, Inc.: Epistemology and Legal Process*, 15 CARDOZO L. REV. 2183, 2194 (1994) (“Science came to be seen not as a gradual, relentless accumulation of knowledge . . . but as a succession of superseded theories . . .”).

247. KUHN, *supra* note 246, at 91.

248. *See id.* at 53.

249. *See id.*

thinking and behavior.²⁵⁰ The significance of neuroplasticity to our beliefs about adult capacity to change cannot be overemphasized. It has been called a “revolutionary discovery,”²⁵¹ that has already permeated our folk psychology. Popular literature abounds with reports, ideas, and suggestions for changing our brains so that we might change our behaviors and thoughts.²⁵² We need only look at the endless news articles reporting studies that challenge our traditional beliefs about decision-making and human change,²⁵³ as well as the numerous self-help publications on “training the brain” to change behavior.²⁵⁴ The new folk belief about the human mind is that it possesses a life-long capacity to change based on environmental stimulus, and that decision-making is less clearly a product of fixed personality or character.

The popular buzz about training one’s brain may sound unduly enthusiastic and unjustifiably optimistic. Part of the enthusiasm for adopting the view that people change, however, has come from studies on how believing people change effects outlook and behavior. As discussed above, the very belief that people can change impacts judgment and behavior in specific ways.²⁵⁵ Carol Dweck notes that a “growth mindset” has “become a buzzword” in business circles. The idea of a growth mindset is based on the central finding in Dweck’s research. People who believe they can improve through practice—people endorsing the “incremental theory” of personality—succeed in improving target behaviors more than people who believe that ability (intelligence and talent) are immutable characteristics.²⁵⁶ Advising businesses on adopting a growth mindset, Dweck cautions against a Pollyanna-ish approach that focuses on simply believing

250. As Alex Rosenberg noted in an opinion piece in the *New York Times*, “It seems hardly a week goes by without another article in the media reporting counterintuitive laboratory findings by empirical psychologists studying cognition, emotion and sensation. What makes many of these results remarkable is their consistent violation of expectations, assumptions and prejudices forced on us by our own conscious awareness.” Alex Rosenberg, *Why You Don’t Know Your Own Mind*, N.Y. TIMES (July 18, 2016), <https://www.nytimes.com/2016/07/18/opinion/why-you-dont-know-your-own-mind.html>.

251. DOIDGE, *supra* note 120, at xvii.

252. See, e.g., SHARON BEGLEY, TRAIN YOUR MIND, CHANGE YOUR BRAIN: HOW A NEW SCIENCE REVEALS OUR EXTRAORDINARY POWER TO TRANSFORM OURSELVES (2007); Amy Morin, *How to Train Your Brain to Think Differently*, PSYCHOL. TODAY (Oct. 10, 2017), <https://www.psychologytoday.com/us/blog/what-mentally-strong-people-dont-do/201710/how-train-your-brain-think-differently> (recounting neuroimaging studies demonstrating changes in the brain as a result of cognitive-behavioral therapy).

253. See, e.g., Bret Stetka, *The Neuroscience of Changing Your Mind*, SCI. AM. (Dec. 7, 2017), <https://www.scientificamerican.com/article/the-neuroscience-of-changing-your-mind/> (reporting on a functional MRI-based study demonstrating that complex processes are involved in changing a course of thinking and behavior once it has begun).

254. See, e.g., BEGLEY, *supra* note 252; Morin, *supra* note 252.

255. Yeager et al., *supra* note 24.

256. Carol Dweck, *What Having a “Growth Mindset” Actually Means*, HARVARD BUS. REV. ONLINE (Jan. 13, 2016), <https://hbr.org/2016/01/what-having-a-growth-mindset-actually-means>; Harvard Business Review Staff, *How Companies Can Profit from a “Growth Mindset”*, HARVARD BUS. REV. ONLINE (Nov. 2014), <https://hbr.org/2014/11/how-companies-can-profit-from-a-growth-mindset>.

that people can change for the better and instructs, instead, that businesses implement institutional structures to support growth.²⁵⁷

The science of adult change may be adopted more quickly in the world of business development than in criminal justice,²⁵⁸ but its application to sentencing is clear. Whether we believe that people can change directly impacts our punitive response to their harmful actions. Belief that personality is fixed correlates with punitive attitudes toward wrongdoers.²⁵⁹ The idea that people do not change correlates with “bad-person attributions” which, in turn, correlates with the desire to seek violent revenge against the “bad person,”²⁶⁰ or to permanently incapacitate him because he is dangerous. In contrast, belief that people change incrementally over time correlates with nonpunitive solutions to conflict, like forgiveness and rehabilitation.²⁶¹ Simply holding the belief that personality is malleable can reduce expressions of shame and retaliation in response to “social adversity.”²⁶²

What are we to make of how little we can explain or predict behavior? Doris points out that “[r]obust traits and evaluatively integrated personality structures are constructs that underwrite substantial stretches of evaluative discourse, but these stretches too often enable unfair condemnations, on the one hand, and unwarranted approbation, on the other.”²⁶³ An empirically informed ethical system would, he suggests, be very hesitant to base its evaluations of people on conclusions about their fixed character or even simply a pattern of past conduct. He urges that “evaluative discourse would be better purged of globalist connotations.”²⁶⁴ If the “globalist connotations” associated with criminal behavior in adulthood are that the defendant is characterologically criminal, what would sentencing look like if it was purged of that mistaken, folk belief in the permanence of the trait of criminality? The next Part addresses this question.

257. Harvard Business Review Staff, *supra* note 256.

258. I do not take a position on the usefulness of self-help and business motivation books, in general. For an overview of that landscape, see Alexandra Schwartz, *Improving Ourselves to Death: What the Self-Help Gurus and Their Critics Reveal About Our Times*, NEW YORKER (Jan. 8, 2018), <https://www.newyorker.com/magazine/2018/01/15/improving-ourselves-to-death> (surveying self-help publications and their critics).

259. See Chi-yue Chiu et al., *Implicit Theories and Conceptions of Morality*, 73 J. PERSONALITY & SOC. PSYCHOL. 923, 931–32 (1997); see also Gervy et al., *supra* note 127, at 27 (discussing entity theorist belief in fixed moral character prompting question, “what type of person is this?” and making judgments of guilt accordingly).

260. Yeager et al., *supra* note 128, at 1101–03.

261. Chiu et al., *supra* note 259; Gervy et al., *supra* note 127, at 22; Michael P. Haselhuhn et al., *How Implicit Beliefs Influence Trust Recovery*, 21 PSYCHOL. SCI. 645, 647 (2010).

262. See David S. Yeager et al., *Implicit Theories of Personality and Attributions of Hostile Intent: A Meta-Analysis, an Experiment, and a Longitudinal Intervention*, 84 CHILD DEV. 1651, 1665 (2013).

263. DORIS, *supra* note 97, at 116.

264. *Id.* at 117.

III. THE RELEVANCE OF ADULT CHANGE TO SENTENCING

In this Part, I begin by briefly outlining some challenges that the science of adult change poses to the traditional goals of sentencing. I then offer two principles—supported by the science of adult change—upon which a new theory of sentencing can be based: (1) a presumption of inclusion, and against judgments of permanent condemnation; and (2) government accountability for the type of change that occurs as a result of imprisonment and other criminal justice interventions. In the second Section, I consider some practical applications of both principles but conclude that the recommendations have undeniable limitations. Ultimately, the constant and contextual nature of adult change seems to call for a more fundamental shift in our response to crime.

A. Applying the Science of Adult Change to Sentencing Theory

Sentencing may serve any of four goals: retribution, incapacitation, rehabilitation, and deterrence.²⁶⁵ Deterrence may be either specific—designed to deter the defendant from committing the crime again—or general—designed to deter others from committing crime.²⁶⁶ As I discuss in the Introduction, incapacitation looms large in U.S. sentencing because it aims to completely prevent the defendant's future crimes by excluding the defendant from society.

Incapacitation as a sentencing goal, however, tends to lack internal limits. The impossibility of achieving a completely safe, crime-free world means that there is always impetus to enhance incapacitative responses to crime.²⁶⁷ Nowhere is this clearer than in habitual offender enhancement cases, where a defendant is sentenced to life in prison based on prior convictions. In *Ewing v. California*,²⁶⁸ for example, the defendant was sentenced to twenty-five years to life for stealing golf clubs as a repeat offender.²⁶⁹ While many would agree that stealing golf clubs does not merit, on retributivist grounds, decades in prison, the U.S. Supreme Court rejected an Eighth Amendment disproportionality challenge to Ewing's sentence on the ground that the state could legitimately imprison a repeat offender for decades to serve the goal of public safety.²⁷⁰ The state may incapacitate repeat offenders for life, even if their crimes are not particularly serious.

Yet, in speaking of utilitarian goals of punishment, such as deterrence and incapacitation, Jeremy Bentham argued for a "frugality" principle:

265. *Ewing v. California*, 538 U.S. 11, 25 (2003) (listing deterrence, incapacitation, retribution, and rehabilitation as legitimate penological goals).

266. Richard Frase, *Sentencing Principles in Theory and Practice*, 22 CRIME & JUST. 363, 371–72 (1997).

267. Simon, *supra* note 57, at 282, 293 (noting that, if, for example, the goal is to perfect public safety, "total" incapacitation will appear justified).

268. 538 U.S. 11.

269. *Id.* at 28, 30–31.

270. *Id.* at 29–31.

that punishment should inflict no pain greater than what is required to accomplish the goal of the punishment. Bentham's "frugality" principle, which is referred to today as a "parsimony" principle, applies to punishments intended to incapacitate the dangerous.²⁷¹ Bentham referred to incapacitative punishments as "disablement" and expressed concern that the defendant who was imprisoned, banished, or put to death would likely be punished in excess of the punishment's goal.²⁷² Applying Bentham's frugality principle to *Ewing*, it seems likely that Mr. Ewing's incapacitation offended the principle of parsimony in many ways, but, at the very least, by extending his prison sentence beyond the point in time when Mr. Ewing would pose a threat to public safety. Parsimony requires that the defendant not be incapacitated if he is not a danger to public safety.

As a preliminary matter, one could factor the age-crime curve into Mr. Ewing's sentencing.²⁷³ As John Pfaff has pointed out, a life sentence "ignores the fact that someone who acts violently when he's eighteen years old may very well be substantially calmer by the time he's thirty-five."²⁷⁴ Ewing was sentenced to a term of twenty-five years to life when he was in his thirties.²⁷⁵ Yet, with every passing year, he was statistically less likely to reoffend.²⁷⁶ His life sentence was, thus, excessive to the goal of incapacitation to protect public safety considering the age-crime curve.²⁷⁷

The science of adult change, however, implies an even greater challenge to incapacitatory sentencing than the application age-crime curve. Change may occur long before actuarial analysis predicts "aging out" of crime, depending on the defendant's exposure to a new experiences or environments.²⁷⁸ In this sense, adults present a version of the problem that the U.S. Supreme Court outlined for juveniles in *Roper* and *Graham*. We cannot, at the outset, sort out who will reoffend and who will not, because we do not know how they will change over time.

Sentences, of course, also can be justified based on their retributive, deterrent, or rehabilitative functions. Although not responsive to every goal of sentencing, the science of adult change should influence sentencing in some of these areas as well. Specifically, the neuropsychological consequences of prison may frustrate the goals of rehabilitation and specific deterrence.

271. See BENTHAM, *supra* note 106, at 142, 151.

272. *Id.* at 152–53 (expressing concern that incapacitation prevents the punished person from doing good in the future).

273. See, e.g., Paul H. Robinson, *Life Without Parole Under Modern Theories of Punishment*, in LIFE WITHOUT PAROLE: AMERICA'S NEW DEATH PENALTY?, *supra* note 1, at 138, 143.

274. PFAFF, *supra* note 139, at 191.

275. *Ewing*, 538 U.S. at 18, 20.

276. *Cf. id.* at 26.

277. *Cf. id.* at 30. I also note that it is questionable whether nonviolent larceny threatens public safety in a way that justifies imprisonment.

278. See Sampson & Laub, *supra* note 240, at 41.

The pains of imprisonment—intended and incidental—are manifold,²⁷⁹ but deprivation is one common denominator. The incarcerated person is deprived of family life, natural environments, variety in environment and food, many forms of work and leisure, and so forth. These deprivations may be entirely deserved from a retributivist's perspective.²⁸⁰ But deprivations do more than simply inflict pain. They produce neurobiological changes in incarcerated people.

The neurobiological effects of prison are currently the subject of debate and study. Certainly, traumatic violence and the threat of violence causes brain change.²⁸¹ Other aspects of long-term incarceration “can stimulate the same negative emotional feelings and behavioral tendencies that have been consistently identified as risk factors of antisocial conduct, especially violence.”²⁸² It is likely, for example, that putting humans in isolated cells for long periods of time damages the brain by reducing cortical volume and weakening the connections between neurons.²⁸³ Not limited to isolation, factors such as overcrowding and high noise levels are also associated with brain changes that negatively impact social, emotional, and cognitive functioning.²⁸⁴ Other studies have led researchers to posit that prison damages emotional functioning by reducing growth and repair of neurons in areas of the brain necessary for emotional capacity and regulation.²⁸⁵

Neurological compromise caused by the experience of imprisonment should come as no surprise. Earlier psychological studies demonstrated the same through behavioral analysis and interviews with formerly incarcerated people.²⁸⁶ Criminologists have observed that prison is a “criminogenic” environment that encourages criminal behavior.²⁸⁷ But the neurological data makes a contribution, as it always does, in providing visible—and therefore persuasive—evidence of brain change. Adult brains, like adolescent brains, can change for the worse in response to environmental stimuli.

279. See GRESHAM M. SYKES, *THE SOCIETY OF CAPTIVES: A STUDY OF A MAXIMUM SECURITY PRISON* 64 (1958).

280. See, e.g., John M. Darley, *Citizens' Assignments of Punishments for Moral Transgressions: A Case Study in the Psychology of Punishment*, 8 OHIO ST. J. CRIM. L. 101, 114 (2010) (discussing the retributive aspects of folk theories of blame and punishment).

281. Mika'il DeVeaux, *The Trauma of the Incarceration Experience*, 48 HARV. C.R.-C.L. REV. 257, 258–62 (2013).

282. See Coppola, *supra* note 172.

283. Arielle R. Baskin-Sommers & Karelle Fontaneau, *Correctional Change Through Neuroscience*, 85 FORDHAM L. REV. 423, 427–30 (2016) (discussing human and nonhuman studies of the neurological impact of solitary confinement and social deprivation).

284. Coppola, *supra* note 172.

285. Coppola, *supra* note 172.

286. Craig Haney, *Psychological Effects of Imprisonment*, in *THE OXFORD HANDBOOK OF SENTENCING AND CORRECTIONS* 584, 584–85 (John Petersilia & Kevin R. Reitz eds., 2012) (discussing the psychological effects of prison).

287. Martin H. Pritikin, *Is Prison Increasing Crime?*, 2008 WIS. L. REV. 1049, 1054–73 (2008) (discussing research and perspectives on the criminogenic effects of incarceration).

The argument I make here is not simply that prison harms, but that prison harms in specific ways that frustrate both the goals of rehabilitation and specific deterrence. The brain changes outlined above decrease capacity to make decisions; reduce the chance that the defendant could, in the future, weigh the costs of committing another crime; and reduce the social-emotional intelligence needed for empathy, perspective-taking, and decision-making that takes into account the needs of others.²⁸⁸

The above-listed cognitive skills are associated with desistance from future criminal activity, whether through a broad notion of rehabilitation,²⁸⁹ or a narrower notion of deterrence in which the former offender rationally chooses not to reoffend so that he will not endure the same punishment.

To be sure, other goals of sentencing may be in the forefront in some cases, including the goals of retribution and general deterrence. If, however, the damage done by imprisonment is unaccounted for at sentencing, the pains of imprisonment may far exceed the punishment intended to serve retributive goals.²⁹⁰ The punishment of prison may be more destructive than accounted for in a “just deserts” analysis.

While the science of adult change empirically challenges the goals of incapacitation, retribution, specific deterrence, and rehabilitation—as well as their parsimonious application—it also suggests a fundamental shift in orientation. It supports the views of a chorus of scholars calling for a better theory of sentencing.²⁹¹ Although I do not offer a comprehensive theory here, I suggest some guiding principles for any new theory of sentencing in the next Section.

288. See Coppola, *supra* note 172.

289. Whether a prison can serve a rehabilitative function has been a matter debated throughout U.S. history. The U.S. penitentiary experiment of the late 1700s and early 1800s began with an effort to provide spaces for repentance and reform. See CALEB SMITH, *THE PRISON AND THE AMERICAN IMAGINATION* 2–3 (2009). Yet, particularly in the federal system, imprisonment is not conceived as having a rehabilitative function. 18 U.S.C. § 3582(a) (2018) (stating that “imprisonment is not an appropriate means of promoting correction and rehabilitation”); *Tapia v. United States*, 564 U.S. 319, 322 (2011).

290. Retributivism can—at least in theory—serve a limiting function; punishment should be no greater than what is deserved. NORVAL MORRIS, *THE FUTURE OF IMPRISONMENT* 73–76 (1974) (While elegant in theory, there is no evidence that retributivist analysis of “just deserts” has served a limiting function on incarceration or long prison sentences). Within a retributivist framework, other goals of sentencing—like rehabilitation and deterrence—may be met in ways that do not prolong punishment beyond the retributivist limit. Christopher Slobogin & Laura Brinkley-Rubinstein, *Putting Desert in Its Place*, 65 *STAN. L. REV.* 77, 122 (2013) (“In the end, the best way to reconcile retributive and preventive goals is probably through some sort of limiting retributivism, or what we are calling preventive justice, which allows utilitarian considerations to have significant impact within a range established by retributive principles.”). While theoretically compelling, limiting retributivism does not appear to have influenced the Supreme Court’s analysis in *Ewing* or policy decisions that resulted in habitual offender statutes discussed in this Article.

291. See generally *THE NEW CRIMINAL JUSTICE THINKING*, *supra* note 36.

B. The Principles of Inclusivity and Reticence to Condemn

The science of adult change presents a normative challenge to practices that result in permanent exclusion from free society.²⁹² It demands an orientation of humility toward long-term prediction. Even in an era of actuarial risk-assessment advances, our predictive powers are less than we imagine them to be. This renders the idea of the hardened criminal more speculative, and the binary distinction between the hardened criminal and the temporarily wayward less trustworthy. This, in turn, supports a moral orientation towards “more universalistic arguments about redemption, rehabilitation, mercy, and aging out of crime.”²⁹³

If we are at least “rhetorically committed” to the idea of reintegrating people convicted of crimes into society,²⁹⁴ then the goal of sentencing should not be to identify and exclude the criminal.²⁹⁵ The principle, then, might be described as more of a move toward inclusion as a long-term goal and away from exclusion as a default position. This stands in contrast to the current default position in which we assume that people who commit crimes are characterologically criminal and only select a low-risk subset to benefit from special, rehabilitative programming.²⁹⁶ My position is that the default assumption should be reverse. We should not be looking for the few temporarily wayward defendants to skim off the top of the criminal justice system but to assume impermanence of criminal behavior.

The reticence to permanently exclude resonates with the values expressed by the U.S. Supreme Court’s analysis in *Graham*, in which Justice Kennedy critiqued life without parole sentences, stating that they “[provide] no chance for fulfillment outside the prison walls, no chance of reconciliation with society, no hope.”²⁹⁷ Reticence to exclude also resonates with the values in other Western countries. The European Court of Human Rights (ECtHR) incorporates the idea of change at any age into its standard for reviewing life sentences. It held that Article 3, which prohibits torture and “inhuman or degrading treatment or punishment” requires that life sentences be *reducible* based on “any changes in the life [of the] prisoner [that] are so significant . . . as to mean that continued detention can no

292. Dolovich, *supra* note 1, at 97 (“[T]he American carceral system, once to some extent at least rhetorically committed to reintegration . . . has come explicitly to embrace the opposite approach, that of permanent exclusion.”).

293. Charles J. Ogletree, Jr. & Austin Sarat, *Lives on the Line: From Capital Punishment to Life Without Parole*, in *LIFE WITHOUT PAROLE: AMERICA’S NEW DEATH PENALTY?*, *supra* note 1, at 1, 18 (quoting Marie Gottschalk, *No Way Out? Life Sentences and the Politics of Penal Reform*, in *LIFE WITHOUT PAROLE: AMERICA’S NEW DEATH PENALTY?*, *supra* note 1, at 227, 241–42).

294. Dolovich, *supra* note 1, at 97 (“[T]he American carceral system, once to some extent at least rhetorically committed to reintegration . . . has come explicitly to embrace the opposite approach, that of permanent exclusion.”).

295. *See id.* at 98, 100.

296. *See, e.g.*, Roger K. Warren, *Evidence-Based Practices and State Sentencing Policy: Ten Policy Initiatives to Reduce Recidivism*, 82 *IND. L.J.* 1307, 1308 (2007).

297. *Graham v. Florida*, 560 U.S. 48, 79 (2010).

longer be justified on legitimate penological grounds.”²⁹⁸ This acknowledges that punishment should not continue if the person being punished (or his circumstance) has changed significantly.

The emerging discourse on dignity in sentencing also stands in opposition to the practice of labeling people as characterologically criminal and destined for permanent exclusion. To permanently exclude is tantamount to creating an untouchable caste.²⁹⁹ This is not only morally wrong but empirically unsupportable. Dignity is “constructed through interactions between the state and the person who falls under the state’s gaze, if not its control.”³⁰⁰ Within the context of punishment decisions, dignity can be construed as the state of belonging—the experience of not being excluded from society.³⁰¹ To be permanently excluded is to be stripped of dignity.³⁰²

If our current system is one of total exclusion, then refraining from permanent exclusion is the antithesis of our current criminal legal system. It is radical inclusion, a “reintegrationist theory of punishment” in which the goal for all is inclusion in the civic body.³⁰³ Applications of the principles of inclusion and reticence to permanently condemn are manifold and require more complete examination in a separate article. Below, I sketch out some possibilities and highlight some of the difficulties.

In its most general application, a principle of inclusion should mean the end of long-term or permanent exclusion from society, whether through the death penalty, long prison sentences, noncarceral sanctions like lifetime probation supervision, or collateral consequences that exclude the convicted from participation in civic life.³⁰⁴ These punishments strip people convicted of crimes of “their status as moral and political subjects and [keep them] beyond the bounds of mainstream society.”³⁰⁵ Here, I focus on the problem of long prison sentences, which can be addressed through statutory changes and, often, through discretionary, sentencing decisions.³⁰⁶

The force of the principles of inclusion is most obvious in long prison sentences that, by design, permanently condemn. One solution is to simply shorten prison sentences. Shorter sentences reduce the window of error for false positives, that is, incarcerating people past the time when they pose

298. *Vinter v. United Kingdom*, Eur. Ct. H.R. 35, 34, 44 (2013).

299. See Dolovich, *supra* note 1, at 97.

300. Fagan, *supra* note 36, at 311.

301. To completely submit the person who committed the crime to the “ideal of public security” is really a gross dignity violation. Simon, *supra* note 57, at 304–05.

302. See JAMES Q. WHITMAN, *HARSH JUSTICE: CRIMINAL PUNISHMENT AND THE WIDENING DIVIDE BETWEEN AMERICA AND EUROPE* 93–94 (2003) (comparing the lack of dignity in the American criminal justice system to European systems where dignity is engrained in the social fabric).

303. Eaglin, *supra* note 16, at 225.

304. Bennett Capers, *Defending Life*, in *LIFE WITHOUT PAROLE: AMERICAS NEW DEATH PENALTY?*, *supra* note 1, at 180; Dolovich, *supra* note 1, at 99, 116–17, 119.

305. Dolovich, *supra* note 1, at 98.

306. See Anne R. Traum, *Mass Incarceration at Sentencing*, 64 *HASTINGS L.J.* 423, 445–68 (2013) (discussing the potential role for the judiciary in considering aspects of mass incarceration at sentencing).

public safety threats. Of course, short sentences may increase the risk of error on the other side, that is, the release of people who still pose a threat to public safety. But the risk of false negatives is less problematic than the risk of false positives, which results in unjustified incarceration. As Jonathon Simon argues, to completely submit the person who committed the crime to the “ideal of public security” is really a gross dignity violation.³⁰⁷

The problem with shorter sentences, however, is that they still may incapacitate people for too long. Even a two-year sentence may be longer than needed for public safety if the incarcerated person has changed.

The alternative to short prison sentences is longitudinal sentencing—or indeterminate sentencing—which provides for multiple opportunities for early release from incarceration. In an indeterminate sentencing regime, legislators set minimum and maximum sentences, which allow for multiple opportunities to secure release through sentence review and parole consideration.³⁰⁸ Many of the mechanisms for early release from prison exist but are unevenly or rarely used.³⁰⁹ They include parole, resentencing, taking time off the sentence for good behavior (“good time credit”), and clemency.

Indeterminate sentencing reduces one of the weaknesses of determinate sentencing—attempting to predict long-term risk of reoffense at the initial sentencing date. A one-time determination of rehabilitative potential leaves an enormous margin for error given the brain’s “plasticity and capacity for change.”³¹⁰ Given the unknowable nature of life trajectories, sentencing decisions should not be final but should allow for multiple opportunities for release and reintegration into society.

Indeterminate sentencing was the norm for the first half of the twentieth century but fell into disfavor in the 1980s when the movement toward determinate sentencing ascended.³¹¹ Starting in the 1990s, the federal sentencing regime, and many state sentencing regimes, foreclosed methods of early release as part of the “truth in sentencing” movement.³¹² The punish-

307. Simon, *supra* note 57, at 304–05.

308. Jorge Renaud discusses the merits of having a “presumption of parole” in his article on early release strategies. Jorge Renaud, *Eight Keys to Mercy: How to Shorten Excessive Prison Sentences*, PRISON POLY INITIATIVE (Nov. 2018), <https://www.prisonpolicy.org/reports/longsentences.html#appendix>.

309. Regional variation is the norm. Some states continued to use indeterminate sentencing with robust parole procedures. For an overview of state procedures, see Jorge Renaud, *Grading the Parole Release Systems of All 50 States*, PRISON POLY INITIATIVE (Feb. 26, 2019), https://www.prisonpolicy.org/reports/grading_parole.html.

310. See Richard A. Bierschbach, *Proportionality and Parole*, 160 U. PA. L. REV. 1745, 1775 (2012) (discussing the impossibility of being confident in a judgment of a juvenile due to their “plasticity and capacity for change”).

311. Michael Tonry, *Obsolescence and Immanence in Penal Theory and Policy*, 105 COLUM. L. REV. 1233, 1245 (2005).

312. Several high-profile crimes were committed by people released on parole. Members of the public were also concerned that a defendant who received a “life sentence” could be released after ten

ment literature discusses at length the reasons why indeterminate sentencing fell into disfavor.³¹³ Early release decisions faced criticism from the public, particularly when a parolee committed a serious crime upon release.³¹⁴ At the same time, incarcerated people and their advocates criticized the arbitrariness, opacity, and discriminatory way in which release decisions were made.³¹⁵ Nonetheless, executive release decisions, like parole, clemency, and commutation, have continued to be practiced in some jurisdictions, while others, like the federal criminal system, abandoned parole altogether.³¹⁶

As a result of growing recognition of the U.S. status as an outlier in the number of people it incarcerates and the length of their prison sentences, the past fifteen years have been marked by renewed interest in mechanisms for early release.³¹⁷ The American Law Institute, for example, has approved changes to the Model Penal Code (MPC) to allow prisoners who have served fifteen years or more to petition a federal judge for a sentencing review.³¹⁸ The Charles Colson Task Force on Federal Corrections (Task Force) adopted the “second look” provision, which it proposed to Congress in 2016.³¹⁹ In endorsing this second look approach, the Task Force noted that the abolition of federal parole resulted in the end of opportunity to review rehabilitation progress in prisoners and offer release on a merit basis. The Task Force noted:

“The ‘age-crime’ curve shows that the likelihood of committing offenses in the future drops sharply beginning at age [forty]. After spend-

years. The “Life Means Life” slogan was emblematic of a strain of political response to crime that promised permanent incarceration and exclusion of anyone who might pose a future danger. Jorge Renaud discusses the merits of having a “presumption of parole” in his article on early release strategies. Renaud, *supra* note 308.

313. Tonry, *supra* note 311, at 1245–59 (discussing the critique of indeterminate sentencing).

314. In Maryland, for example, on the heels of a homicide committed by a prisoner while on temporary work-release from prison, the governor announced that he would no longer agree to the parole release of people serving life sentences. Lila Meadows, *Realizing “Meaningful” in Maryland: A Call for Reforming Maryland’s Parole System in Light of Graham, Miller, & Montgomery*, 48 U. BALT. L.F. 59, 62 (2018).

315. See Tonry, *supra* note 311, at 1254–60.

316. One form of “early release” is the receipt of set sentence discounts for good behavior in prison. “Good time credits” were much less controversial than discretionary parole and clemency and enjoyed support throughout the “truth-in-sentencing” era. See, e.g., Paul J. Larkin, Jr., *Clemency, Parole, Good-Time Credits, and Crowded Prisons: Reconsidering Early Release*, 11 GEO. J.L. & PUB. POL’Y 1, 11–12 (2013).

317. See, e.g., Shon Hopwood, *Second Looks, Second Chances*, 41 CARDOZO L. REV. 83, 95–96 (2019).

318. *Model Penal Code: Sentencing*, AMERICAN LAW INSTITUTE (April 10, 2017), <https://www.ali.org/publications/show/sentencing/#drafts>; *Model Penal Code: Sentencing Approved*, AMERICAN LAW INSTITUTE (May 24, 2017), <https://www.ali.org/news/articles/model-penal-code-sentencing-approved/>.

319. See CHARLES COLSON TASK FORCE ON FED. CORR, *TRANSFORMING PRISONS, RESTORING LIVES, FINAL RECOMMENDATIONS OF THE CHARLES COLSON TASK FORCE ON FED. CORR.* 46 (2016).

ing more than a decade in prison, many aging, even once violent, individuals represent little threat to public safety. For this group of people, any societal benefit of incarceration has long since been achieved.³²⁰

Fifteen years is still a dramatically long period of time in the life of a human being. Given our limited ability to predict reoffense, sentences should probably be reviewed at least every five years or less. Nonetheless, the MPC's proposal captures the emerging concern for needlessly long terms of incarceration and provides a potential vehicle for developing "second look" mechanisms. Sentence review is particularly important when executive release decisions through parole and clemency fail to provide a meaningful opportunity for release.³²¹

The empirical evidence of change throughout the lifespan appears to logically call for indeterminate sentencing, yet, it is problematic for many reasons. Clemency, for example, was revived in President Obama's administration through a more robust administrative process of screening and release.³²² Clemency is characterized by almost limitless executive discretion and, thus, results in idiosyncratic release decisions.³²³ Importantly, release decisions cannot be counted on because they reflect the priorities of the executive. One need only note the speed with which President Obama's clemency initiative was dismantled at the completion of his final term in office.³²⁴

The process of parole release is more structured than clemency, and usually involves a decision-making process set out in statutes and regulations. Parole release decisions include review of institutional records, risk and needs assessment instruments, and clinical interviews to determine whether to grant release. Parole was a common means of releasing prisoners who demonstrated reform. Before the 1990s, even people convicted of murder were expected to be paroled and rejoin society.³²⁵

Although the parole process is more robust and structured than clemency and commutation, it also presents significant problems: the parole

320. *Id.* at 47 (citing Alfred Blumstein & Kiminori Nakamura, *Redemption in the Presence of Widespread Criminal Background Checks*, 47 *CRIMINOLOGY* 327, 341 (2009); Robert J. Sampson & John H. Laub, *Life-Course Desisters? Trajectories of Crime Among Delinquent Boys Followed to Age 70*, 41 *CRIMINOLOGY* 301, 311–12 (2003)).

321. *See, e.g.*, E. Lea Johnston, *Modifying Unjust Sentences*, 49 *GA. L. REV.* 433, 452–53 (2015) (arguing, generally, for greater judicial power to reduce and modify sentences and, specifically, in instances with mentally ill prisoners).

322. *See* THE MERCY LOTTERY: A REVIEW OF THE OBAMA ADMINISTRATION'S CLEMENCY INITIATIVE, CENTER ON THE ADMIN. OF CRIMINAL LAW AT NYU LAW SCH. 5 (2018).

323. *Id.* at 5, 28–31 (discussing the limited number of releases in light of other meritorious clemency petitions, and proposing changes to the clemency process). But, for a thoughtful analysis of how clemency could be reinvigorated and restructured to provide nonarbitrary means of early release, see Rachel E. Barkow & Mark Osler, *Restructuring Clemency: The Cost of Ignoring Clemency and a Plan for Renewal*, 82 *U. CHI. L. REV.* 1, 4–5 (2015).

324. *See* Sari Horowitz, *Obama to Commute Hundreds of Federal Drug Sentences in Final Grants of Clemency*, *WASH. POST* (Jan. 16, 2017), https://www.washingtonpost.com/world/national-security/obama-to-commute-hundreds-of-federal-drug-sentences-in-final-grants-of-clemency/2017/01/16/c99b4ba6-da5e-11e6-b8b2-cb5164beba6b_story.html.

325. *Id.*

process (1) lacks meaningful judicial review; (2) still requires the releasing authority to predict future behavior, a task this Article argues is exceptionally difficult; and (3) can have the effect of coercing prisoners into intrusive therapeutic regimes. I address these concerns *seriatim* here.

First, parole release decisions are notoriously discretionary and immune from meaningful judicial review.³²⁶ There is no constitutional right to parole, and the due process protections to which the parole applicant is entitled are limited by the degree to which the controlling statute appears to create a parole right.³²⁷ Any process deemed adequate by state law is usually enough.³²⁸ This renders parole release vulnerable to arbitrariness and discrimination without the possibility of meaningful review.³²⁹

Parole release decisions can be arbitrary because they are based on “a multiplicity of imponderables, entailing primarily what a man is and what he may become rather than simply what he has done.”³³⁰ Even attempts to standardize release decisions by using actuarial tools like risk assessments have not alleviated concerns that release decisions are discriminatory. Because predicting which defendants have the lowest risk of reoffense is done with actuarial tools that reflect preexisting racial disparities, rehabilitative diversion reflects the pernicious racial disparity in the criminal legal system as a whole.³³¹

Should we return to a regime of indeterminate sentencing that relies on parole, the judiciary must expand its review of parole release decisions so that the parole process is fair and prison conditions do not subvert the

326. See, e.g., Laura I. Appleman, *Retributive Justice and Hidden Sentencing*, 68 OHIO ST. L.J. 1307, 1307 (2007) (identifying parole as an understudied aspect of “hidden sentencing”). The Prison Policy Initiative created a rubric to grade state parole systems. Renaud, *supra* note 308. Sixteen states abolished discretionary parole, meaning that they provide no mechanism for releasing a person who has demonstrated exemplary conduct and suitability for release before the maximum sentence date. The rubric includes process features that are hallmarks of due process, like the right to be present for a face-to-face hearing with the person charged with deciding on release, the right to challenge incorrect information about the underlying crime or prison conduct, clearly enumerates in statute or regulations the grounds for release and denial, allows prisoners to access their files to prepare for the hearing, and provides a meaningful review process of the parole board’s release decision. Notable is the variety of practices, and the few states that afford a panoply of process safeguards and protections. Prisoners in some states will receive adverse release decisions without the benefit of an in-person hearing, without the opportunity to review and comment on the institutional file that forms the basis of the decision, and without the right to appeal the denial.

327. See *Greenholtz v. Inmates of the Neb. Penal & Corr. Complex*, 442 U.S. 1, 12 (1979) (noting that while defendants do not have a constitutional right to release on parole, and, thus, procedural due process rights, the Court will analyze on a case-by-case basis whether the parole statute in question has a “unique structure and language” that indicates a “protectable entitlement”).

328. See *Swarthout v. Cooke*, 562 U.S. 216, 220–21 (2011); *Greenholtz*, 442 U.S. at 16.

329. Regarding the arbitrariness of parole decisions among states, see Jorge Renaud, *Red States, Blue States: What Do These Mean for People on Parole?*, PRISON POL’Y INITIATIVE (Jan. 2, 2019), <https://www.prisonpolicy.org/blog/2019/01/02/parole/> (comparing the “hope index,” meaning the chance of being released on parole, in Massachusetts and Texas).

330. *Greenholtz*, 442 U.S. at 10 (quoting Sanford H. Kadish, *The Advocate and the Expert—Counsel in the Peno-Correctional Process*, 45 MINN. L. REV. 803, 813 (1960)).

331. See Eaglin, *supra* note 16, at 214–17.

purpose of the sentence by failing to provide necessary services.³³² Legislation must clearly set forth the parole applicant's rights to parole consideration to ensure judicial review is meaningful.³³³ Moreover, parole release decisions from life sentences should take on a constitutional dimension.

In the context of juvenile life sentences, where constitutional constraints may implicate parole decisions, the opportunity for release through parole must be "meaningful" in the sense that it must consider the individual's course of maturation and rehabilitation.³³⁴ To pass constitutional muster, courts should ensure "that parole boards have engaged in the individualized, granular determinations that *Graham* contemplated by considering and weighing evidence bearing on the offender's specific circumstances."³³⁵ States that are grappling with how to provide juveniles serving life sentences with meaningful opportunities for release provide a partial framework for thinking about making parole predictable and fair for everyone. Massachusetts' highest court, for example, held that juveniles serving life sentences must have at their parole release hearings the assistance of counsel, funds for expert witnesses, a transcript of the proceedings, a written decision explaining the basis for a denial or a grant, and judicial review of the parole board's denial.³³⁶

The European model might serve as an example for parole reform by balancing risk and right to release more effectively.³³⁷ European parole release decisions integrate a belief in the defendant's "capacity to change."³³⁸ Most European countries see consideration for release as a right for all prisoners and require routine consideration for release for all prisoners serving life sentences.³³⁹ With regard to assuming the risk that a released prisoner might reoffend, European countries clarify that release occurs in spite of the risk of reoffense, and that the risk must be balanced against the prisoner's recognized liberty interest.³⁴⁰ There is a strong commitment to due process as well as the "underlying values such as human

332. See Richard A. Bierschbach & Stephanos Bibas, *Constitutionally Tailoring Punishment*, 112 MICH. L. REV. 397, 450–51 (2013) (discussing allocation of sentencing authority to "back-end" release procedures, which should be constitutionally inspired to be more robust and less arbitrary).

333. See *Greenholtz*, 442 U.S. at 12 (state statute government parole release decisions created limited due process rights for prisoners applying for parole).

334. See Bierschbach, *supra* note 310, at 1779–81 (noting that *Graham* raises significant questions about how parole and proportionality analysis intersect and compares individualized consideration in *Graham* parole hearings with individualized sentencing required in death penalty cases).

335. *Id.* at 1786. The sentencing court's individualized assessment of rehabilitative potential would thus be applied to the parole release hearing. See *Williams v. New York*, 337 U.S. 241, 248–49 (1949) ("careful study of the lives and personalities of convicted offenders" is necessary because "[r]eformation and rehabilitation of offenders have become important goals of criminal jurisprudence").

336. *Diatchenko v. Dist. Attorney for Suffolk Dist.*, 27 N.E.3d 349, 358–65 (Mass. 2015).

337. See Dirk van Zyl Smit & Alessandro Corda, *American Exceptionalism in Parole Release and Supervision*, in AMERICAN EXCEPTIONALISM IN CRIME AND PUNISHMENT 410, 465–66 (Kevin R. Reitz ed., 2017).

338. *Id.* at 435.

339. *Id.* at 441–42.

340. *Id.* at 448.

dignity, social reintegration, and the ability to change.”³⁴¹ Perhaps even more important, the European system of parole favors a “strong presumption in favor of release at the initial parole eligibility” process.³⁴² Finally, prisoners have the right to challenge a denial of release on parole, and the review process includes a final appeal to the ECtHR.³⁴³

The second concern raised by longitudinal sentencing applies to all forms of early release decisions. They do not escape the central conundrum of determining risk of reoffense, a prediction I contend is very difficult given the adult capacity to change. Arguably, risk prediction after sentencing is more accurate because it includes more information about the incarcerated person’s conduct in prison, and the risk assessment may only attempt to predict immediate behavior upon release. Short-term prediction accords with best practices in the mental health profession, where clinicians have moved away from one-time risk assessments to predict future dangerousness to longitudinal assessments of the variables of risk of dangerousness.³⁴⁴

The third concern about indeterminate sentencing is its focus on the therapeutic rehabilitation of the incarcerated person, which can be intrusive and even degrading.³⁴⁵ In their bid for release, incarcerated people might have to undergo psychological testing, participate in group therapy sessions, and permit the paroling authority unfettered access to mental health treatment records.³⁴⁶

Predicting future dangerousness is likely to become more intrusive as neuroscientific technology improves. In some sentencing hearings in the United States, neuropsychological experts opine on the defendant’s unique features that may challenge culpability, mitigate punishment, or assess future risk.³⁴⁷ It seems inevitable (and troubling) that brain imaging will one day become a routine part of the risk assessment process. The Netherlands, for example, uses functional magnetic resonance imaging (fMRI) scans

341. *Id.* at 450.

342. *Id.* at 457.

343. *Id.* at 433. The ECtHR will defer to the country’s parole procedures, however. *Id.* at 435.

344. Kevin S. Douglas & Jennifer L. Skeen, *Violence Risk Assessment: Getting Specific About Being Dynamic*, 11 PSYCHOL. PUB. POL’Y & L. 347, 350 (2005) (This shift parallels the shift away from long-term civil commitment to community-based mental health treatment, while monitoring potential dangerousness over time. The shift has been described as moving from a “violence prediction model” to a “violence reduction model” with a parallel move toward identifying which dynamic risk factors reduce the risk of violence and can be controlled through clinical intervention.).

345. Morris B. Hoffman, *Therapeutic Jurisprudence, Neo-Rehabilitationism, and Judicial Collectivism: The Least Dangerous Branch Becomes Most Dangerous*, 29 FORDHAM URB. L.J. 2063, 2082 (2002) (arguing that rehabilitative goals of sentencing result in judges acting as “intrusive, coercive, and unqualified state psychiatrists and behavioral policemen.”).

346. See, e.g., Jeremy Isard, *Under the Cloak of Brain Science: Risk Assessments, Parole, and the Powerful Guise of Objectivity*, 105 CALIF. L. REV. 1223, 1229 (2017) (discussing California’s parole release risk assessment protocol, which involves actuarial instruments, clinical interviews, as well as folk consideration of remorse and responsibility).

347. Gur et al., *supra* note 148, at 559–61 (describing the standard protocol for such assessments); see also Deborah Denno, *The Myth of the Double-Edged Sword: An Empirical Study of Neuroscience in Criminal Cases*, 56 B.C. L. REV. 493 (2015) (analyzing defense and prosecution uses of neuroscience in 800 criminal cases).

routinely on prisoners.³⁴⁸ Neuroscientists are currently studying whether brain imaging can predict which mental health and addiction treatments will be most effective for patients.³⁴⁹

While incorporating “neuroprediction” into risk assessments has garnered some supporters,³⁵⁰ it has also generated concern.³⁵¹ Not only is it invasive,³⁵² but it may lead to errors based on inadequately confirmed theories about the relationship between fMRI data and human behavior.³⁵³ The science may not be advanced enough to draw conclusions from the physical findings on brain scans about what the person will do in the future. The fact that brains change in response to time and environment compounds this concern.

In sum, indeterminate sentencing accommodates what we now know about adult capacity to change by providing second looks—opportunities for release based on demonstrated change. The process of deciding who and when to release, however, is plagued with problems related to accuracy, fairness, and intrusiveness.

C. *Accountability for Contexts Producing Change*

The science of adult change lends empirical support to a common intuition that prison frustrates rehabilitation.³⁵⁴ To quote a neuroscientist, “neuroplasticity isn’t all good news.”³⁵⁵ Deprivation and trauma change the very structure of the brain reshape the incarcerated person in fundamentally harmful ways. Acknowledging the physical evidence of brain deterioration in response to imprisonment should spur more than a call to prison reform. It should also spur a call to dramatically reduce incarceration as a response to crime.

348. See Eyal Aharoni et al., *Neuroprediction of Future Rearrest*, 110 PROC. NAT’L ACAD. SCI. 6223, 6223 (2013) (demonstrating an example of recent studies on neuroprediction).

349. John Gabrieli, *A Look Within: Imaging Technologies Could Find the Best Treatments for Depression and Addiction – and Could Even Reshape Education*, 318 SCI. AM., no. 3, 2018, at 56 (reporting on studies finding a correlation between structural brain features and amenability to treatment for depression and likelihood of alcoholic relapse).

350. The term “neuroprediction” was popularized by Thomas Nadelhoffer at Duke University. Nadelhoffer argues that the science of neuroprediction is reliable enough to be integrated into criminal risk assessment. See Thomas Nadelhoffer & Walter Sinnott-Armstrong, *Neurolaw and Neuroprediction: Potential Promises and Perils*, 7 PHIL. COMPASS 631, 634, 636–37 (2012).

351. Andrew R. Calderon, *A Dangerous Brain: Can Neuroscience Predict How Likely Someone Is To Commit Another Crime?*, MARSHALL PROJECT (Aug. 14, 2018, 10:00 P.M.), <https://www.themarshallproject.org/2018/08/14/a-dangerous-brain> (discussing controversy surrounding findings by “neuroprediction” studies by Kent Keihl et al. on the relationship between rearrest rates and two measures of brain structure and activity).

352. See, e.g., Federica Coppola, *Mapping the Brain to Predict Antisocial Behaviour: New Frontiers in Neurocriminology, ‘New’ Challenges for Criminal Justice*, 105 NEUROETHICS (forthcoming 2019) (contending that predictive neuroscience implicates privacy and civil liberty concerns).

353. Francis X. Shen and others have argued that the science is not advanced enough to make reliable predictions about future behavior based on current brain structure and activity.

354. See, e.g., 18 U.S.C. § 3582(a) (2018) (stating “imprisonment is not an appropriate means of promoting correction and rehabilitation”).

355. DOIDGE, *supra* note 120, at xx.

With regard to prison reform, conditions of incarceration should take into account that adult brains change in response to environmental stimulus. We have some foundational knowledge about how environment improves brain development. For children and adolescents, identifiable “neurological prerequisites desired to foster cognitive, behavioural, and interpersonal competencies” include “nutrition, rest, a stimulating and loving environment; ample opportunity to observe prosocial behavior; consistent rewards for the incremental development of self-regulation and empathy for others; a childhood free from physical violence and access to toxic substances.”³⁵⁶ It is likely that similar prerequisites foster social, cognitive, and emotional competencies in adults. The image that comes to mind is of the Norwegian prison, which looks more like a college campus than a locked facility.³⁵⁷ Such comfort may offend the retributivist elements of U.S. punishment that require infliction of discomfort and pain, but it comports with evidence that environment contributes to shaping the person and, as such, the state should be accountable for its role in shaping the person who will one day be released.

The clearer we are about the implications of the science of adult change, the clearer we can be about what we mean by rehabilitation. Depending on the context, rehabilitation has meant medical or psychological care, vocational training, or moral reform.³⁵⁸ At a more basic level, however, rehabilitation could imply simply providing environments that take into account variables that affect “life-course trajectories” in people convicted of crimes.³⁵⁹ Sometimes called “mechanisms of desistance,” the factors include: (1) situations that distinguish the present from the past; (2) situations that provide social support and growth; (3) situations that “change and structure routine activities;” and (4) situations that allow a transformation of identity.³⁶⁰ Accountability for contexts of change implies shared responsibility for ensuring that the protective factors, factors that lead to desistance from crime, are in place.

Nevertheless, I am skeptical of prison reform given incarceration’s baseline function of separating people convicted of crimes from family and other meaningful social contexts, like work and community. Modern prisons are, after all, designed to punish through deprivation, not to rehabilitate.³⁶¹ More broadly, adoption of the belief that adults continue to

356. Clair Nee & Zarah Vernham, *Expertise and its Contribution to the Notion of Protective Factors in Offender Rehabilitation and Desistance*, 32 *AGGRESSION AND VIOLENT BEHAV.* 37, 40 (2016).

357. See Amelia Gentleman, *Inside Halden, The Most Humane Prison in the World*, *GUARDIAN* (May 18, 2012, 4:48 PM), <https://www.theguardian.com/society/2012/may/18/halden-most-humane-prison-in-world>.

358. Flanders, *supra* note 106, at 388–403, 419–20. Chad Flanders offers a useful taxonomy for the Supreme Court’s differing perspectives on rehabilitation: therapeutic, training, and moral reform.

359. See Robert J. Sampson & John H. Laub, *A Life-Course View of the Development of Crime*, *ANNALS AM. ACAD. OF POL. & SOC. SCI.*, Nov. 2005, at 12, 15–16.

360. *Id.* at 17–18.

361. *Tapia v. United States*, 564 U.S. 319, 332 (2011) (interpreting federal law to prohibit “imposing or lengthening a prison term to promote an offender’s rehabilitation.”).

change throughout life in response to their environment supports a prison abolitionist ethic. As Allegra McLeod explains, the abolitionist ethic is oriented toward responding to social harm through means other than criminal punishment.³⁶²

Scholarship on prison abolition abounds, and much of it is beyond the scope of this Article.³⁶³ But, as McLeod suggests, a first step could be to shift our primary focus away from punishing crime and toward preventive interventions outside of the prison walls.³⁶⁴ While multiple sources confirm that impoverished neighborhoods are associated with higher rates of mental health issues and criminal offending,³⁶⁵ newer studies have demonstrated the effectiveness of neighborhood-based interventions. Providing housing for homeless people, for example, has been shown to reduce rates of criminal offending.³⁶⁶ Improving conditions in neighborhoods also has been shown to reduce homicides.³⁶⁷

A recent Brookings Institute study lends support to the theory of the community-based response to crime.³⁶⁸ Analyzing data on employment rates before and after incarceration, the study noted that incarcerated people had low employment rates before incarceration. While the study aimed to examine the effect of tax incentives for hiring ex-felons, it inadvertently showed that family backgrounds of extreme hardship, followed by low or no employment in adulthood, predicts higher incarceration rates.³⁶⁹ Its data strongly suggest that pre-incarceration investment in impoverished communities to create educational and vocational opportunities is likely to reduce incarceration rates.³⁷⁰

This Section has employed the science of adult change as a critique of incapacitation, and to demonstrate the incompatibility of incarceration with the goals of rehabilitation and specific deterrence. Other aspects of

362. See Allegra M. McLeod, *Prison Abolition and Grounded Justice*, 62 UCLA L. REV. 1156, 1161 (2015).

363. See, for example, *Harvard Law Review's* 2019 Symposium on Prison Abolition and related articles, including Patrice Cullers, *Abolition and Reparations: Histories of Resistance, Transformative Justice, and Accountability*, 132 HARV. L. REV. 1684 (2019); Allegra M. McLeod, *Envisioning Abolition Democracy*, 132 HARV. L. REV. 1613 (2019); Dylan Rodriguez, *Abolition as Praxis of Human Being: A Forward*, 132 HARV. L. REV. 1575 (2019); Angel E. Sanchez, *In Spite of Prison*, 132 HARV. L. REV. 1650 (2019).

364. McLeod, *supra* note 362, at 1167–68.

365. Rates of reoffense, for example, are strongly correlated to the neighborhood to which the defendant returns after incarceration. Gerald J. Stahler et al., *Predicting Recidivism for Released State Prison Offenders: Examining the Influence of Individual and Neighborhood Characteristics and Spatial Contagion on the Likelihood of Reincarceration*, 40 CRIM. JUST. & BEHAV. 690, 694 (2013).

366. See Julian M. Somers et al., *Housing First Reduces Re-offending Among Formerly Homeless Adults with Mental Disorders: Results of a Randomized Controlled Trial*, 8 PLOS ONE, no. 9, Sept. 4, 2013, at 8.

367. See Allison J. Culyba et al., *Modifiable Neighborhood Features Associated with Adolescent Homicide*, 170 J. AM. MED. ASS'N PEDIATRICS 473, 479 (2016).

368. See generally ADAM LOONEY & NICHOLAS TURNER, BROOKINGS INSTITUTION, WORK AND OPPORTUNITY BEFORE AND AFTER INCARCERATION (2018).

369. See *id.* at 19.

370. *Id.*

sentencing, of course, are not directly challenged by my arguments, including the retributivist goal of punishment insofar as it aims to provide a moral answer to culpable actions and social harm.

This Section also articulated sentencing principles empirically informed by the science of adult change. First, the principle of inclusion, and reticence to permanently condemn, should lead to a commitment to only provisional judgments about character and risk, even in cases of serious crime. Second, the principle of accountability for the contexts of crime suggests both critical analysis of the state's contribution to crime, through its ruining prison conditions, and, also, a hopeful project of creating environments that support neuropsychological repair. The specific recommendations discussed have limitations, which points to the need for further development of a cohesive theory of sentencing that does not rely on exclusionary practices.

CONCLUSION

The survey of scientific literature discussed in Part II could lead to another conclusion: Sentencing policy should never be based on incapacitation because we cannot accurately predict future behavior. Others have taken this position, and it is defensible.³⁷¹ My guess, however, is that it would be psychologically impossible *not* to consider public safety in sentencing. If concern for the defendant's future risk of reoffense is intuitively part of sentencing, then the task is to make sure that our underlying assumptions are not grossly distorted by folk beliefs about characterological criminality. Decisions to incapacitate and exclude should be minimal and subject to reconsideration.

To be sure, evaluating sentencing policy in light of scientific claims presents risks. First, there is the risk that the science is wrong, or that the law's interpretation of the science is wrong.³⁷² Optimists about predictive sentencing, for example, hope that risk assessment practices can be improved to reduce "false positive" results—incapacitating people who do not pose a public safety threat.³⁷³ But, as discussed earlier in this Article, long-term predictions are inaccurate, due, in part, to the instability of personality and behavior over time and in response to new experience.³⁷⁴ And,

371. See Michael Tonry, *Predictions of Dangerousness at Sentencing: Déjà vu All Over Again*, in 48 CRIME & JUSTICE—A REVIEW OF THE RESEARCH: AMERICAN SENTENCING: WHAT HAPPENS AND WHY? 439, 472 (Philip J. Cook et al. eds., 2019).

372. In discussing how juvenile neuroscience has been used to influence legislative changes in juvenile justice, Francis Shen notes the difference in "neuronarratives" between "lab science" and "lobbyist science." Shen, *supra* note 74, at 999, 1013.

373. Tonry, *supra* note 371, at 472–76.

374. See *supra* Part III.A. Discussions of whether future behavior can be predicted from brain architecture face the same challenge. If brains change in response to experience, the architecture of the brain will change over time. To be sure, obvious brain damage can often be correlated with behavioral changes, but the relationship between brain architecture and behavior probably differs among individuals. Stephan J. Morse, *Brain Overclaim Redux*, 31 LAW & INEQ. 509, 520 (2013) ("[I]t is extremely unlikely that the relation between the brain and behavior will be invariant in groups or

it is all too easy to find other examples of pseudoscience—now debunked—used to mark a group of people as prone to dangerousness and criminality.³⁷⁵

The scientific claim I hold up in this Article is, however, much more general and cautionary. Far from conclusory, the aspects of research that I have highlighted have the effect of reducing our certainty in prediction and increasing attention to empirical evidence of how prison and social conditions change brains.³⁷⁶ The limits of neuroplasticity, to say nothing of the variables influencing it, are still largely unknown. It is thus not a particularly conclusory position that I take about the science, and it is a position that permits substantial revision.³⁷⁷

In her critique of juvenile justice advocates' embrace of juvenile brain science after *Roper* and *Graham*, Terry Maroney raises the above concerns and also mounts a more fundamental challenge: that a gesture to scientific findings could displace the essential work of identifying normative commitments in punishment theory.³⁷⁸ Sentencing decisions are based on values, and science does not create values.³⁷⁹ I agree that science cannot steer sentencing judgment. Once the value has been identified, however, empirical data can demonstrate a mismatch between the values and practice. Thus, if incapacitation is an acceptable goal of sentencing, incapacitative punishments should not exceed their public safety goals.³⁸⁰

individuals. The brain is always changing, and the brain-environment interaction is powerful. The causal relation between the brain and behavior is going to be exceptionally complex, variable, and mediated by non-neural variables.”).

375. Consider, for example, the pernicious use of the destructive pseudoscience of eugenics. Laura I. Appleman, *Deviancy, Dependency, and Disability: The Forgotten History of Eugenics and Mass Incarceration*, 68 DUKE L.J. 417, 436–61 (2018).

376. Even scholars critical of the law's overexuberant embrace of neuroscience are tentatively supportive of the idea that neuroscience successfully demonstrates that some rules, doctrines, and policy in criminal law are based on incorrect folk beliefs about human thinking and behavior. Morse, *supra* note 23, at 72.

377. Of more general concern, however, may be that I am unwittingly selecting only the science that fits with my agenda. In an exercise of “motivated reasoning” I may have selected only studies that fit my point. Dan M. Kahan, *Neutral Principles, Motivated Cognition, and Some Problems for Constitutional Law*, 125 HARV. L. REV. 1, 19 (2011). If the cognitive scientists are correct about the unconscious nature of motivated reasoning, it is unlikely that I will be able to ascertain the degree of my bias. I am not positioned to evaluate this concern, and, therefore, must leave it to the reader except to say that I have included studies offering a contrary position in Part II. In particular, I have noted the studies of Moffitt, *Taxonomy*, *supra* note 132, at 674, who developed theory of “life-course persistent” offenders, studies that Justice Thomas relied upon in his dissent in, *Graham v. Florida*, 560 U.S. 48, 117–119 (2010) (Thomas, J., dissenting).

378. See Terry A. Maroney, *Adolescent Brain Science After Graham v. Florida*, 86 NOTRE DAME L. REV. 765, 792 (2011) [hereinafter Maroney, *Brain Science After Graham*]; Terry A. Maroney, *The False Promise of Adolescent Brain Science in Juvenile Justice*, 85 NOTRE DAME L. REV. 89, 172 (2009) [hereinafter Maroney, *False Promise*].

379. See Maroney, *False Promise*, *supra* note 378, at 172.

380. See Jeffrie G. Murphy, *Marxism and Retribution*, 2 PHIL. & PUB. AFF. 217, 232 (1973) (“[P]hilosophical theories are in peril if they are constructed in disregard of the nature of the empirical world in which they are supposed to apply.”).

The science of adult change should not steer sentencing, but, rather, should support the values in sentencing.³⁸¹ This Article suggests empirically grounded principles upon which to critique current theory and build a new theory. The brutality of both the practice of imprisonment and the conditions of confinement stand in stark contrast to our commitment to provide the circumstances in which people can change for the better. It is a moral problem informed by folk beliefs about people that are not empirically informed. The empirical problem is that we are wrong in thinking we know who should be permanently incapacitated and who is incapable of rehabilitation. This leads to a moral problem of discarding people by permanently stigmatizing and condemning them based on an inaccurate folk belief that they are characterologically criminal. While embracing the science of adult change can serve the utilitarian objectives of rehabilitation and public safety, it also supports a “moral orientation” toward imagining responses to crime that aim to reintegrate, rather than permanently exclude, and to realistically account for and change the conditions of punishment.³⁸²

381. See Maroney, *Brain Science After Graham*, *supra* note 378, at 792 (concluding that the science may “contribute, though marginally, to legislatures’ and courts’ recommitment to juvenile justice values.”).

382. McLeod, *supra* note 362, at 1160–68.