UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF VIRGINIA
CHARLOTTESVILLE DIVISION

UNITED STATES OF AMERICA

v. Case No. 3:18cr00011

JAMES ALEX FIELDS, JR.

DEFENDANT'S SENTENCING MEMORANDUM

The essential property of mercy is that it applies to the undeserving. The hope attached to the expression of mercy is that, in time, the undeserving can change. Due to his tender age, his consistent history battling various mental health diagnoses, the ongoing effects of trauma he endured as a child, and as an expression of the unbending conviction that no individual is wholly defined by their worst moments, this court should resist the temptation to conclude James Fields' story after its first twenty years by imposing a life sentence.

With respect to his age, the Supreme Court has ruled that the Eighth Amendment clearly limits the sentences that can be imposed upon children. This is due, in part, to the scientific consensus around two ideas that are as true as they are intuitive: first, that the physiological processes of growth extend well past adolescence and, second, that emerging adults have a greater capacity for reform. In short, we are increasingly coming to understand that adolescence—and the well-understood immaturity, irresponsibility, impetuousness, and recklessness that accompany it—does not end at age 18. In fact, contemporary neuroscience proves that the constitutionally distinct status of juveniles must extend to at least the age

of 21. As a result, it would be unconstitutionally cruel and unusual to sentence someone who was 20 at the time of an offense to a sentence of life imprisonment. Even in the absence of such a conclusion about the Eighth Amendment, the Court must still consider the mitigating aspects of James' youth at the time of the offense.

In addition, James has battled mental illness since he was a young child. He inherited a strong family history of bipolar disorder, and was hospitalized three times during his school years for his mental illness, with a myriad number of doctors and interventions in between. Fundamentally, James' mental illness causes him to lose emotional and behavioral control in stressful situations. His cognitive distortions cause him to respond with aggression and anger. By high school, his medications were stabilized, and he was able to exercise control over his symptoms. This period ended when James was rejected from military school due to his medications, and he made the decision to stop treatment so he could enlist after high school. He only started taking medication again while incarcerated after August 12th.

Finally, James' story cannot be told without understanding the childhood trauma of growing up with the knowledge that his Jewish grandfather (who suffered from bipolar disorder) had murdered James' grandmother (who also suffered from bipolar disorder) before committing suicide. James' father—who also suffered from bipolar disorder—was killed in a car accident before James was born. James' mother was in an accident that made her a paraplegic before he was born. She raised him from a wheelchair as a single mother.

If mercy is extended only to the undeserving, we do so as an act of hope. In particular, we extend mercy in the hope that an individual's worst act is neither their only act, nor their last. This worst act was committed in the shadow of James' own history and was the result of a terrible decision he made in a few minutes when he found himself trying to get back to Ohio but was instead unexpectedly blocked by a crowd of counter-protesters.

In this case, there is reason for hope. The reason adolescent behavior must be judged differently is because "predictions about adolescents' future character and behavior based on assessments made prior to maturation amount to little more than speculation."[1] There is an "absence of proof that assessments of adolescent behavior will remain stable into adulthood [which] invites unreliable…sentencing based on faulty appraisals of character and future conduct."[2] Given James' age and state of brain development, and his mental illness, it would be speculation to assume that he would make the same hateful decision in the future.

For these reasons, James asks this Court for a sentence of less than life imprisonment.

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[1] Declaration of Dr. Laurence Steinberg, Distinguished University Professor of Psychology, Temple University, attached hereto as Exhibit B, at 7 [hereinafter Ex. B].

[2] *Id* at 24 (citing Brief for the American Psychological Association and the Missouri Psychological Association as Amici Curiae Supporting Respondent, *Roper v. Simmons*, 543 U.S. 551 (2005) (No. 03-633)).

I. James' history and characteristics are marked by childhood trauma and mental illness and support a sentence of less than life.

James' family history is one of trauma, violence, and mental illness—beginning before his birth, and exerting a powerful influence on his neurological, psychological, and social development.

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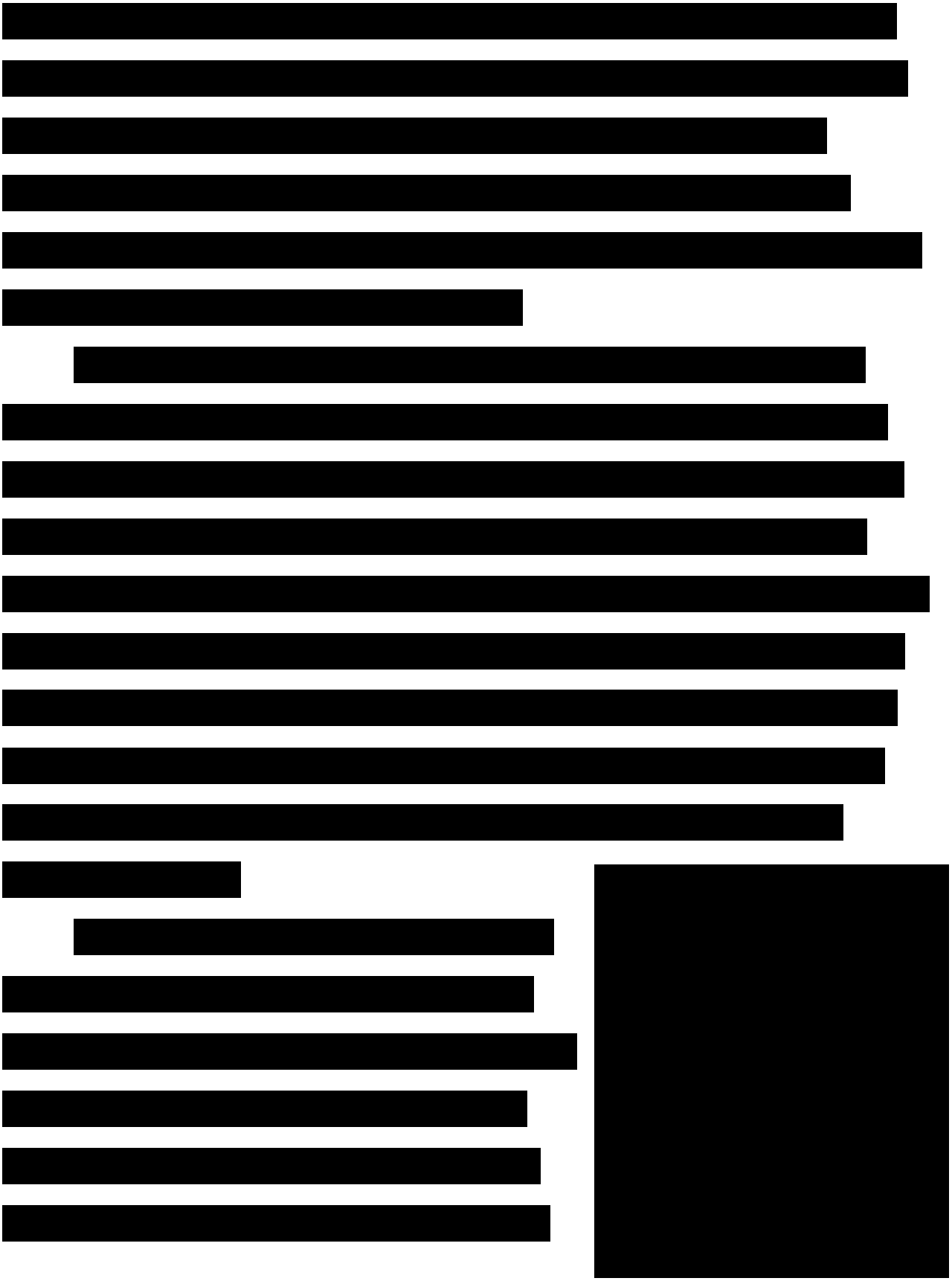

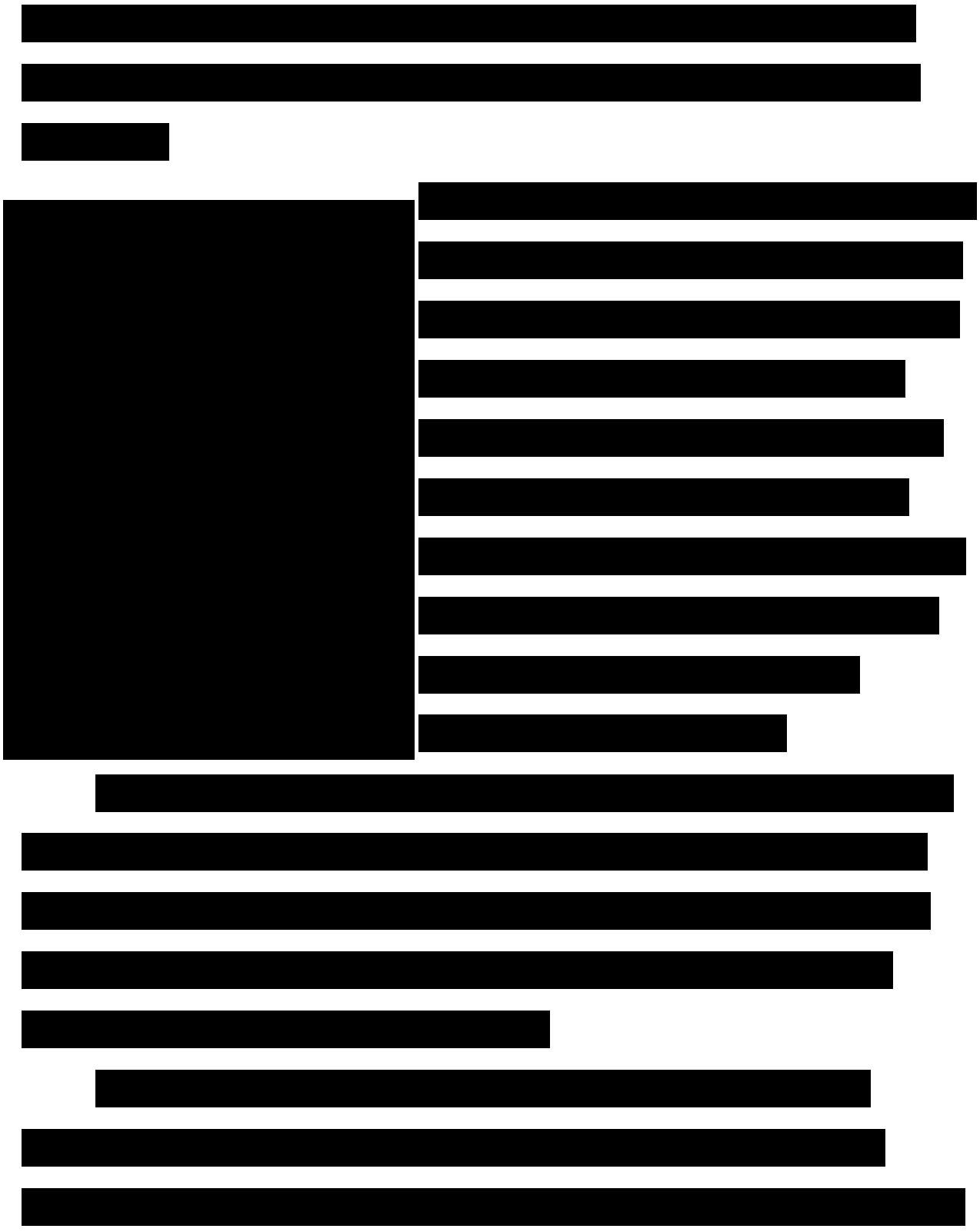

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II. James' age at the time of the offense (20) requires a sentence of less than life.

It would be unconstitutionally cruel and unusual to sentence anyone who was 20 at the time of the offense to life imprisonment without the possibility of parole. In lieu of agreeing that such a sentence would be unconstitutional, this Court should consider James' age as a mitigating factor under the guidelines and sentence him to less than life imprisonment for that reason.

A. A sentence of life imprisonment would violate the Eighth Amendment

The Supreme Court has made it clear that juveniles are different. The Eighth Amendment limits the sentences that can be imposed on children.[6] This is because youth are understood to have reduced culpability but also greater capacity for reform. This understanding has derived from psychology and brain science showing "fundamental differences between juvenile and adult minds."[7]

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[6] *Roper v. Simmons*, 543 U.S. 551 (2005) (prohibiting execution of children under 18 at time of offense); *Graham v. Florida*, 560 U.S. 48, 74-75 (2010) (children convicted of non-homicide offenses cannot be sentenced to life without parole and must have "realistic" and "meaningful opportunity to obtain release based on demonstrated maturity and rehabilitation"); *Montgomery v. Louisiana*, 577 U.S. _, 136 S. Ct. 718, 733 (2016) (extending *Graham* to even homicide cases except in the rarest of cases where the sentence determines the particular child "exhibits such irretrievable depravity that rehabilitation is impossible"); *Miller v. Alabama*, 567 U.S. 460, 473 (2012) (same).

[7] *Graham*, 560 U.S. at 68.

Contemporary neuroscience and "evolving standards of decency" compel the same conclusion for a 20-year-old. Adolescence, and the well-understood immaturity, irresponsibility, impetuousness, and recklessness that accompany it, do not end at age 18. Contemporary neuroscience proves that the constitutionally distinct status of juveniles must extend to at least the age of 21. As a result, it would be unconstitutionally cruel and unusual to sentence someone who was 20 at the time of an offense to a sentence of life imprisonment for the reasons set forth below.

1. *Roper*, *Graham*, and *Miller* clearly relied on then up-to-date neuroscience to determine that adolescents are "constitutionally different" from adults for sentencing purposes

Beginning with *Roper* in 2005, the Supreme Court has repeatedly held that the Eighth Amendment's prohibition against cruel and unusual punishment prohibit treating offenders who commit murder when under 18 as adults for sentencing.[8] This is based on the Eighth Amendment's "proportionality" requirement which prohibits certain punishments from being imposed on categories of individuals with diminished culpability.[9] These punishments are deemed disproportionate "based on mismatches between the culpability of a class of

[8] 543 U.S. at 551; *see also Graham*, 560 U.S. at 48; *Miller*, 567 U.S. at 470.
[9] *See, e.g.*, *Graham,* 560 U.S. at 48; *Kennedy v. Louisiana,* 554 U.S. 407 (2008) (capital punishment for non-homicide offense unconstitutional); *Roper,* 543 U.S. at 551; *Atkins v. Virginia,* 536 U.S. 304 (2002) (capital punishment unconstitutional for the intellectually disabled); *Enmund v. Florida,* 458 U.S. 782 (1982) (capital punishment unconstitutional for offenders who did not kill, attempt to kill, or intend to kill).

offenders and the severity of a penalty."[10] These cases all hold that "children are constitutionally different from adults for sentencing purposes."[11]

The constitutionally distinct status of juveniles is premised on the constitutional finding that juvenile offenders "have diminished culpability and greater prospects for reform" than adults. *Id*. "Youth is more than a chronological fact."[12] Adolescence is a "transient" period of "immaturity, irresponsibility, 'impetuousness, and recklessness.'"[13]

Miller holds that the "distinctive attributes of youth" are not "crime-specific," but apply even to adolescents who "commit terrible crimes," and identifies "three significant gaps between juveniles and adults:"

- Adolescents' "lack of maturity" and "underdeveloped sense of responsibility" engender "recklessness, impulsivity, and heedless risk-taking."
- Adolescents are more susceptible to negative environmental influences and pressures, "including from their family and peers," in part because adolescents "have limited control over their own environment and lack the ability to extricate themselves from horrific, crime-producing settings."
- Adolescents are more likely to change: "a child's character is not as well-formed as an adult's, his traits are less fixed and his actions are less likely to be evidence of irretrievable depravity."[14]

Roper, *Graham*, and *Miller* all relied heavily on then-available advances in neuroscience which documented the highly significant neurobiological differences between adolescent and adult brains. "Our decisions rested not only on common

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[10] *Miller,* 567 U.S. at 470.
[11] *Id.*
[12] *Id.* at 476 quoting *Eddings v. Oklahoma*, 455 U.S. 104, 115 (1982).
[13] *Id*. quoting *Johnson v. Texas*, 509 U.S. 350, 368 (1993).
[14] *Id.* at 471.

sense—on what 'any parent knows'—but on science and social science as well."[15] As detailed below, current developments in neuroscience, many of which were not available when *Roper*, *Graham*, and *Miller* were decided, conclusively demonstrate that the same neurobiological "transient qualities of youth" last beyond the age of 17. The adolescent brain does not magically mature on its eighteenth birthday. This fact is significant because the adolescent brain is so different from the adult brain.

2. Neuroscience demonstrates that adolescents are different because of their distinct developmental phase characterized by heightened proclivity to risk taking, impulsivity, and a diminished capacity for self-regulation

Research pioneered by Dr. Laurence Steinberg, Distinguished University Professor of Psychology, Temple University, demonstrates that the human brain undergoes a "massive reorganization" during the teenage years. These changes are both structural and functional and make adolescence a stage of life biologically distinct from childhood and adulthood.[16] Although the brain's logical capabilities are generally fully formed at 16, the systems controlling more complex judgments—such as risk/reward evaluations, responses to environmental stressors, and impulse control—do not completely develop until the mid-twenties.[17]

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[15] *Miller,* 567 U.S. at 471.
[16] Laurence Steinberg, *A Behavioral Scientist Looks at the Science of Adolescent Brain Development*, 72 Brain & Cognition 160, 160 (2010) [hereinafter Steinberg, *Behavioral Scientist*]; *see* Laurence Steinberg, *Adolescent Development and Juvenile Justice*, 5 Ann. Rev. Clinical Psychol. 459, 465 (2009) [hereinafter Steinberg, *Adolescent Development*].
[17] *See, e.g.*, Nat'l Research Council, Comm. on Assessing Juvenile Justice Reform, *Reforming Juvenile Justice: A Developmental Approach* 132 (Richard J. Bonnie et

As the adolescent brain matures, it undergoes a temporary developmental imbalance between two neurobiological systems: the limbic system, associated with emotions and reward-seeking, and the prefrontal regulatory system, which governs rational judgment and impulse control.[18] During early and middle adolescence, the limbic system experiences a "rapid and dramatic increase in dopaminergic activity," causing a marked increase in reward seeking, sensation seeking, and accompanying risky behavior.[19] The reward centers of the adolescent brain are more active than those of adults, leading to an overestimation of rewards versus risks.[20]

At the same time, "compelling neurobiological evidence" demonstrates that the brain's regulatory system undergoes a more gradual, linear maturation over the course of adolescence.[21] This means that adolescents have a qualitatively higher neurological inclination to engage in risky activity, while at the same time they have a qualitatively lower ability to control impulses or accurately assess future consequences. "Adolescents develop an accelerator a long time before they can steer

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al. eds., 2013); Elizabeth Cauffman & Laurence Steinberg, *(Im)maturity of Judgment in Adolescents: Why Adolescents May Be Less Culpable Than Adults*, 18 Behav. Sci. & L. 741, 744 (2000).

[18] *See, e.g.*, Nat'l Research Council, *supra*, at 2; Steinberg, *Adolescent Development*, *supra*, at 466-65; Alison Gopnik, *What's Wrong With the Teenage Mind*, Wall St. J., Jan. 28, 2012.

[19] Steinberg, *Adolescent Development*, *supra*, at 466; *see* Nat'l Research Council, *supra*, at 97-98; Gopnik, *supra*.

[20] *See, e.g.*, Gopnik, *supra*; David Dobbs, *Beautiful Brains*, Nat'l Geographic Mag., Oct. 2011.

[21] Steinberg, *Adolescent Development*, *supra*, at 466; *see, e.g.*, Nat'l Research Council, *supra*, at 92, 96-99; Laurence Steinberg, *A Social Neuroscience Perspective on Adolescent Risk-Taking*, 28 Dev. Rev. 78, 83 (2008) [hereinafter Steinberg, *Risk-Taking*].

and brake."[22] The ability to regulate and assess increases gradually as adolescents age.[23]

Studies further show that emotionally-charged situations exacerbate this discrepancy, leaving teenagers—especially young men—even less able to exercise the regulatory functions of the brain in the very contexts when those moderating functions are most needed. While young men may be good at "cold reasoning," their ability to reason at times of stress and excitement—"hot reasoning"—remains undeveloped and immature.[24]

Ultimately, this developmental imbalance explains why "adolescence is a time of inherently immature judgment."[25] Although teenagers might seem as

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[22] Gopnik, *supra.*
[23] *See, e.g.*, Laurence Steinberg, *A Dual Systems Model of Adolescent Risk-Taking*, 52 Developmental Psychobiology 216 (2010); Charles Geier & Beatriz Luna, *The Maturation of Incentive Processing and Cognitive Control*, 93 Pharmacology, Biochemistry, & Behav. 212, 215-18 (2009).
[24] *See, e.g.*, Nat'l Research Council, *supra*, at 92-93; Bernard Figner et al., *Affective and Deliberative Processes in Risky Choice*, 35 J. Experimental Psychol. 709, 709 (2009). Anatomically, these changes can be explained as follows. The brain experiences a loss of "gray matter"—the shedding of excess, unused synaptic connections—and a gradual increase in "white-matter," a coating of myelin which speeds neural-transmission. *See, e.g.*, M.R. Asato et al., *White Matter Development in Adolescence: A DTI Study*, 20 Cerebral Cortex 2122 (2010); Dobbs, *supra*; Geier & Luna, *Cognitive Control*, *supra*, at 215-16 ; Steinberg, *Adolescent Development*, *supra*, at 466. Together, the reduction in gray matter and the increase in white matter improves the efficiency and connectivity of neural signaling in the prefrontal cortex and among multiple regions of the brain. *See, e.g.*, Nat'l Research Council, *supra*, at 99; Geier & Luna, *supra*, at 215-16; Steinberg, *Risk-Taking*, *supra*, at 93-95. These functional changes are associated with improved "response inhibition, planning ahead, weighing risks and rewards, and the simultaneous consideration of multiple sources of information." Steinberg, *Risk-Taking*, *supra*, at 94; *see, e.g.*, Nat'l Research Council, *supra*, at 99; Asato et al., *supra*, at 2123; Geier & Luna, *supra*, at 215
[25] Steinberg, *Adolescent Development*, *supra*, at 467.

intelligent as adults, "their ability to regulate their behavior in accord with these advanced intellectual abilities is more limited."[26] Adolescents overvalue immediate rewards and are less future-oriented compared to adults; they are more impulsive, more susceptible to emotion and stress, and less likely to perceive the consequences of their actions, especially negative ones.[27]

In summary, adolescents and people in their early 20s are:

- More likely than adults to underestimate the number, seriousness, and likelihood of risks involved in a given situation;
- Prone to engage in what psychologists call "sensation-seeking"—the pursuit of arousing, rewarding, exciting or novel experiences;
- Less able to control their impulses and consider the future consequences of their actions and decisions;
- More socially and emotionally immature than their intellectual maturity would suggest.

These are the fundamental reasons that youth is different, and the Supreme Court has agreed.

3. Advances in neuroscience render any hardline distinction between 17-year-olds and 20-year-olds irrational and invalid

The Supreme Court's conclusions in *Miller, Graham*, and *Roper* were largely informed by the work of Dr. Laurence Steinberg discussed above. Dr. Steinberg was the lead scientist for the American Psychological Association ("APA") in drafting the APA's *amicus* briefs in *Roper*, *Graham*, and *Miller*. He was responsible for assuring that the briefs accurately reflected the science of adolescent development as it was

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[26] *Id.*
[27] *Id.* at 468-70; Human Rights Watch & Amnesty Int'l, *The Rest of Their Lives: Life Without Parole for Child Offenders in the United States* 46 (2005).

understood at the time.[28] However, Dr. Steinberg has explained that research has advanced considerably in recent years and that "knowing what we know now, one could've made the very same arguments about 18-, 19- and 20-year-olds that were made about 16- and 17-year olds in *Roper*."[29]

Dr. Steinberg has prepared a declaration in this case, attached hereto as Exhibit B. In this declaration he states that "[f]urther study of brain maturation conducted during the past decade has revealed that several aspects of brain development affecting judgment and decision-making are not only ongoing during early and middle adolescence, but continue at least until age 21."[30] Further, [a]s more research confirming this conclusion accumulated, by 2015 the notion that brain maturation continues into late adolescence became widely accepted among neuroscientists."[31] One reason researchers have learned so much more is the

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[28] *Testimony of Laurence Steinberg*, *Cruz v. United States*, No. 11-CV-787 (JCH), 2017 WL 3638176, (D. Conn. September 13, 2017).
[29] *Commonwealth v. Bredhold*, Order Declaring Kentucky's Death Penalty Statute as Unconstitutional, No. 14-CR-161 (Fayette [Ky.] Cir. Ct. Aug. 1, 2017), (summarizing Dr. Steinberg's testimony in that case).
[30] Ex. B at 5.
[31] *Id.* at 6, citing N. Dosenbach, et al., *Prediction of Individual Brain Maturity Using fMRI*, 329 Science 1358 (2011); D. Fair, et al., *Functional Brain Networks Develop from a "Local to Distributed" Organization*, 5 PLoS Computational Biology 1 (2009); AM Hedman et al., *Human Brain Changes Across the Life Span: A Review of 56 Longtitudinal Magnetic Resonance Imaging Studies*, 33 Human Brain Mapping 1987 (2012); A. Pfefferbaum et al., *Variation in Longitudinal Trajectories of Regional Brain Volumes of Healthy Men and Women (Ages 10 to 85 Years) Measured with Atlas-Based Parcellation of MRI*, 65 NeuroImage 176 (2013); D. Simmonds, et al., *Developmental Stages and Sex Differences of White Matter and Behavioral Development Through Adolescence: A Longitudinal Diffusion Tensor Imaging (DTI) Study*, 92 NeuroImage 356 (2014); L. Somerville et al., *A Time of Change: Behavioral and Neural Correlates of Adolescent Sensitivity to Appetitive and Aversive Environmental Cues* 72 Brain & Cognition 124 (2010); C. Tamnes et

advent of functional Magnetic Resonance Imaging (fMRI) which permits observation of the brains of living individuals. "The results of this examination demonstrated that key brain systems and structures, especially those involved in self-regulation and higher-order cognition, continue to mature throughout adolescence until at least the age of 21 and likely beyond in some areas of function."[32] Dr. Steinberg explains that the "contemporary view of brain development as ongoing at least until age 21 stands in marked contrast to the view held by scientists as recently as 15 years ago."[33]

> We now know that, in many respects, individuals between 18 and 21 are more neurobiologically similar to younger teenagers than had previously been thought; their character has not yet been fully formed (as those brain regions most determinant of character are the last to mature), they remain amendable to change, and they are able to profit from rehabilitation.[34]

As a result, courts have begun extending the Eighth Amendment protections of *Roper*, *Graham*, *Miller*, and *Montgomery* to young adults. For example, a trial court in Kentucky declared the death penalty unconstitutional for offenders under 21.[35] The court reasoned that "given the national trend toward restricting the use of the death penalty for young offenders, and given the recent studies by the

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al., . *Development of the Cerebral Cortex Across Adolescence: A Multisample Study of Inter-related Longitudinal Changes in Cortical Volume, Surface Area, and Thickness*, 37 J. Neuroscience 3402 (2017); K. Whitaker et al., *Adolescence Is Associated with Genomically Patterned Consolidation of the Hubs of the Human Brain Connectome*, 113 PNAS 9105 (2016).

[32] *Id.* at 5.

[33] *Id.* at 6-7.

[34] *Id.* at 7.

[35] *See Commonwealth v. Bredhold*, No. 14-CR-161, Order Declaring Kentucky's Death Penalty Statute as Unconstitutional (Fayette [Ky.] Cir. Ct. Aug. 1, 2017) (Scorsone, J.).

scientific community, the death penalty would be an unconstitutionally disproportionate punishment for crimes committed by individuals under twenty-one (21) years of age [at the time of the offense]."[36] A New Jersey appellate court similarly relied on *Miller* to support its decision to remand for resentencing a 75-year aggregate sentence imposed for murder committed by a 21-year-old defendant, reasoning that where the sentence is the practical equivalent of life without parole, courts must "consider at sentencing a youthful offender's failure to appreciate risks and consequences as well as other factors often peculiar to young offenders."[37]

The American Bar Association has relied upon this change in neuroscience as the reason for its Resolution 111, which "urges each jurisdiction that imposes capital punishment to prohibit the imposition of a death sentence on or execution of any individual who was 21 years or younger at the time of the offense."[38] The resolution explains its rationale as based on "findings [that] demonstrate that 18 to 21 year olds have a diminished capacity to understand the consequences of their

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[36] *Id.* (relying heavily on brain science-related testimony to conclude that the death penalty is a disproportionate punishment for offenders younger than 21 because such individuals are categorically less culpable and have a better chance at rehabilitation); *see also Commonwealth v. Diaz*, No. 15-CR-584-001, Order Declaring Kentucky's Death Penalty Statute as Unconstitutional (Fayette [Ky.] Cir. Ct. Sept. 6, 2017) (Scorsone, J.).

[37] *State v. Norris*, No. A-3008-15T4, 2017 WL 2062145, at *5 (N.J. Super. Ct. App. Div. May 15, 2017); s*ee also Cruz v. United States*, No. 11-CV-787 (JCH), 2017 WL 3638176 (D. Conn. April 3, 2017) (granting defendant's motion for a hearing on a § 2255 motion, concluding that he raised an issue of material fact as to whether a youth of 18 years and 20 weeks is legally and developmentally a child such that his mandatory life-without-parole sentence violates the Eighth Amendment).

[38] American Bar Association Resolution 111, available at https://www.americanbar.org/content/dam/aba/images/abanews/mym2018res/111.pdf [hereinafter ABA Resolution].

actions and control their behavior in ways similar to youth under 18."[39] "Additionally, research suggests that late adolescents, like juveniles, are more prone to risk-taking and that they act more impulsively than older adults in ways that likely influence their criminal conduct."[40] Nor are "18 to 21 year olds…fully mature enough to anticipate future consequences."[41] Furthermore, "profound neurodevelopmental growth continues even into a person's mid to late twenties."[42] The resolution cited to a study sponsored by the National Institute of Mental Health which tracked the brain development of 5,000 children and discovered their brains were not fully mature until at least 25 years of age.[43]

4. Evolving standards of decency strongly suggest *Miller* relief should be extended to the age of 21

Community standards of decency are relevant to an Eighth Amendment analysis. When *Roper* banned the death penalty for those under 18, it cited not only neuroscience, but a "national consensus" that offenders under 18 should not be

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[39] *Id.* (citing Jeffrey Arnett, *Reckless Behavior in Adolescence: A Developmental Perspective*, 12 Developmental Rev. 339, 343 (1992); Kathryn L. Modecki, *Addressing Gaps in the Maturity of Judgment Literature: Age Differences and Delinquency*, 32 L. & Hum. Behav. 78, 79 (2008) ("In general, the age curve shows crime rates escalating rapidly between ages 14 and 15, topping out between ages 16 and 20, and promptly deescalating.")).

[40] *Id.* (citing Elizabeth S. Scott et al., *Young Adulthood as a Transitional Legal Category: Science, Social Change, and Justice Policy*, 85 Fordham L. Rev. 641, 644 (2016)).

[41] *Id.* (citing Laurence Steinberg et al., *Age Differences in Future Orientation and Delay Discounting*, 80 Child Dev. 28, 35 (2009)).

[42] *Id.* (citing Christian Beaulieu & Catherine Lebel, *Longitudinal Development of Human Brain Wiring Continues from Childhood into Adulthood*, 27 J. Neuroscience 31 (2011); Pfefferbaum et al., *supra* note 9).

[43] *Id.* (citing Dosenbach et al., *supra* note 9).

treated as full adults. *Roper* recognized that the national consensus had changed since 1988 when the Court declared, in *Thompson v. Oklahoma*, 487 U.S. 815 (1988), that the death penalty was unconstitutional *only* for those under 16.

The national consensus now recognizes that youth does not end at 18. The United States Sentencing Commission, for example, issued a report in 2017, *Youthful Offenders in the Federal System, Fiscal Years 2010 to 2015* ("The Youthful Offenders Report") that affirms this view. The Commission, based on "recent case law and neuroscience research," redefined "youthful offender" to include offenders "25 years old and younger."

> Traditionally, youthful offenders often have been defined as those under the age of 18, but for purposes of this study, the Commission has defined youthful offenders as a federal offender 25 years old or younger at the time of sentencing. The inclusion of young adults in the definition of youthful offenders is informed by recent case law and neuroscience research in which there is a growing recognition that people may not gain full reasoning skills and abilities until they reach age 25 on average.[44]

Multiple federal statutes now recognize that 20 year olds lack the full maturity of adulthood. The Foster Care Act of 2008, permits states to define "child" as "an individual . . . who has not attained 19, 20 or 21 years of age." The Gun Control Act of 1968 prohibits individuals under age 21 from purchasing handguns. 18 U.S.C. §§ 922(b)(1), (c)(1). The National Minimum Drinking Age Act of 1984 prohibits those under 21 from purchasing alcohol. 23 U.S.C. §158.

State legislatures have responded to the advances in neuroscience by affording greater protections to youthful offenders who have passed their 18th

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[44] *The Youthful Offenders Report,* at *5.

birthday. "[A]s of 2016, all fifty states and the District of Columbia recognized extended age jurisdiction for juvenile courts beyond the age of 18, in comparison to only 35 states in 2003." *Cruz*, 2017 WL 3638176, at *56. "Between 2016 and 2018, 5 states and 285 localities raised the age to buy cigarettes from 18 to 21." *Id.* The majority of states now set 21 as the line at which children age out of foster care.[45] Other states that do not establish the line at 21, nevertheless set it above 18.[46] Vermont sets it at age 22.[47]

There are a plethora of nationwide initiatives designed to protect late adolescents who have passed their 18th birthday. "Young Adult Courts" have been created in San Francisco, CA (begun 2015 for age 18-25); Omaha, NE (up to age 25);

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[45] Alabama, Ala. Code § 38-7-2(1); Alaska, Alaska Stat, § 47.10.080(c); Arizona, Ariz. Rev.Stat. Ann. § 8-501(B); California, Cal. Welf. & Inst. Code § 303(a); Colorado, Colo. Rev.Stat. § 19-3-205(2)(a); Connecticut, Conn. Gen. Stat. Ann. § 17a-93(a); Delaware, Del. Code Ann. tit. 10, § 929(a); Washington, D.C., D.C. Code Ann. § 16-2303; Florida, Fla. Stat. Ann. § 39.013(2); Georgia, Ga. Code Ann. § 15-11-2(10)(c); Idaho, Idaho Code Ann. §§39-1202(3) & (9); Illinois, Ill. Comp. Stat. Ann. § 405/2-31(1); Indiana, Ind. Code Ann. §31-28-5.8-5(a); Kansas, Kan. Stat. Ann. § 38-2203(c); Kentucky, Ky. Rev. Stat. § 620.140(1)(d)-(e); Maryland, Md. Code Ann., Cts. & Jud. Proc. § 3-804(b); Michigan, Mich. Comp. Laws Ann. § 772.981-85; Minnesota, Minn. Stat. Ann. § 260C.451; Mo. Ann. Stat. §110.04 (12); Nebraska, Neb. Rev. Stat. Ann. §§ 43-905 & 43-4502; Nevada, Nev. Rev. Stat. Ann. § 432B.594; New Hampshire, N.H. Rev. Stat. Ann. § 169-C:4; New Jersey, N.J. Stat. Ann. § 30:4C-2.3; New York, N.Y. Fam. Ct. Act § 1087(a); Ohio, Ohio Rev. Code Ann. §2151.81; Oregon, Or. Rev. Stat. Ann. § 419B.328; Pennsylvania, 42 Pa. Const. Stat. Ann. §6302; South Dakota, S.D. Codified Laws § 26-6-6.1; Tennessee, Tenn. Code Ann. §§37-1-102(4)(G) & 37-2-417(b); Texas, Tex. Fam. Code Ann. § 263.602; Virginia, Va. Code Ann. § 63.2-905.1; Washington, Wash. Rev. Code Ann. § 74.13.031(16); West Virginia, W. Va. Code Ann. § 49-2B-2(x); and Wyoming, Wyo. Stat. Ann. § 14-3-431(b).

[46] Maine, (age twenty), Maine Rev. Stat. tit. 22, §§ 4037-A(1) & (5); New Mexico, (age nineteen), N.M. Stat. Ann. § 32A-4-25.3; Wisconsin, (age nineteen), Wis. Stat. Ann. §48.355(4).

[47] Vt. Stat. Ann. tit. 33, § 4904 (age twenty-two).

Kalamazoo County, MI (begun in 2013 for age 17-20); Lockport City, NY; and New York, NY (begun 2016 for age 18-20). The *Youthful Offender Report* details probation/parole programs, programs led by prosecutors, community-based programs, hybrid programs, and prison programs all reflecting the national, nonpartisan recognition that late adolescents should not be subject to the full brunt of adult criminal penalties. *Id.* at *25-29, 30-40.

Finally, the ABA Resolution mentioned above cites additional evidence that community standards have evolved, including some of the examples presented above.[48] In addition, the resolution notes that many rental car companies set minimum rental ages at 20 or 21, with higher rental fees for individuals under age 25.[49] Under the Free Application for Federal Student Aid (FAFSA), the Federal Government considered individuals under the age of 23 legal dependents of their parents.[50] Relatedly, the Internal Revenue Service allows students under 24 to be

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[48] ABA Resolution, *supra* note 12 at 7-9.
[49] ABA Resolution, *supra* note 12, (citing *What are Your Age Requirements for Renting in the US and Canada*, Enterprise.com, https://www.enterprise.com/en/help/faqs/car-rental-under-25.html (last visited June 18, 2019); *Restrictions and Surcharges for Renters Under 25 Years of Age*, Budget.com, https://www.budget.com/budgetWeb/html/en/common/agePopUp.html (last visited June 18, 2019); *Under 25 Car Rental*, Hertz.com, https://www.hertz.com/rentacar/misc/index.jsp?targetPage=Hertz_Renting_to_Drivers_Under_25.jsp (last visited June 18, 2019)).
[50] ABA Resolution *supra* note 12, (citing *Dependency Status*, Federal Student Aid, https://studentaid.ed.gov/sa/fafsa/fillingout/dependency (last visited Sept. 21, 2017). 59 (last visited June 18, 2019)).

dependents for tax purposes and the Affordable Care Act allowed individuals under 26 to remain on their parents' health insurance.[51]

5. The result is that it would violate the Eighth Amendment to sentence someone who was 20 at the time of the offense to life without the possibility of parole.

In conclusion, based on both current neuroscience and contemporary understandings, this Court should not sentence James, or any other offender who was 20 years of age at the time of the offense, to a sentence of life or it would be unconstitutionally cruel and unusual in violation of the Eighth Amendment.

B. A life sentence would not take seriously the mitigating qualities of youth combined with James' history for mental illness.

All of the arguments above equally support a sentence to less than life in this specific case based on the role that youth had in the offense, separate and apart from any Eighth Amendment analysis. Sentencing guideline § 5H1.1 specifically provides that youth "may be relevant in determining whether a departure is warranted, if considerations based on age, either individually or in combination with other offender characteristics, are present to an unusual degree and distinguish the case from the typical cases covered by the guidelines." In addition, the guidelines specifically provide that mental conditions "may be relevant in determining whether a departure is warranted, if such conditions, individually or in

[51] ABA Resolution (citing 26 U.S.C. § 152 (2008); 42 U.S.C. § 300gg-14 (2017); *Dependents and Exemptions 7*, I.R.S, https://www.irs.gov/faqs/filing-requirements-statusdependents-exemptions/dependents-exemptions/dependents-exemptions-7 (last visited June 18, 2019)).

combination with other offender characteristics, are present to an unusual degree and distinguish the case from the typical case covered by the guidelines."[52]

> The following summary is excerpted from Dr. Cohen's assessment of James:
>
> The above detailed review of Mr. Fields records indicates longstanding, severe difficulties with loss of emotional and behavioral control when in situations where he has felt stressed by having been challenged, threatened, or singled out. The primary goal of all of the pharmacologic, psychotherapeutic, and educational interventions that he has received since early childhood has been to help him to achieve greater self-control when he finds himself in such situations. He also has demonstrated some longstanding cognitive distortions when in such situations, including a tendency to externalize the nature of his difficulties, becoming angry and aggressive toward the people around him, whom he has seen as threatening him in some way.[53]

Dr. Cohen reported that if James presented the same childhood symptoms today as he did when he was 7 years of age in 2004, the current Diagnostic and Statistical Manual of Mental Disorders would have led to a diagnosis of disruptive mood dysregulation disorder (DMDD). DMDD is characterized by the presence of very unstable moods "chronic, daily irritability along with superimposed acute, severe tantrums or anger outburst with minimal provocation."[54] Dr. Cohen noted that in one study, when presented with a series of ambiguous facial expressions, individuals with DMDD were "more likely to see anger in the faces than were control subjects, suggesting that they are prone to experience more 'hostile bias attribution' (i.e., a greater tendency to see a threat) than do other individuals."[55]

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[52] U.S.S.G. § 5H1.3.
[53] Ex. A at 31.
[54] *Id.*
[55] *Id.* at 32.

The combination of James' age and mental conditions would warrant a sentence of less than life on their own. But this Court must also consider the effect of the childhood trauma that James experienced, growing up with a single parent who was in a wheelchair, the knowledge that his father was killed in an accident before he was born, and that his grandfather had murdered his grandmother. "[I]t is clear that adverse childhood experiences have a profound, proportionate, and long-lasting effect on emotional state, whether measured by depression or suicide attempts, by protective unconscious devices like somatization and dissociation, or by self-help attempts that are misguidedly addressed solely as long-term health risks."[56] Childhood trauma is strongly linked to mental and physical health problems over the lifespan. "It negatively impacts brain development, cognitive development, learning, social-emotional development, the ability to develop secure attachments to others, and physical health; it is also associated with a shortened lifespan . . . A considerable body of research demonstrates that children suffer the most severe, long-lasting, and harmful effects when trauma exposure begins early in life . . . ."[57]

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[56] Vincent J. Felitti & Robert F. Anda, *The Relationship of Adverse Childhood Experiences to Adult Medical Disease, Psychiatric Disorders, and Sexual Behavior: Implications for Healthcare* 7, in *The Hidden Epidemic: The Impact of Early Life Trauma* (R. Lanius & E. Vermetten, eds., 2009), http://www.acestudy.org/yahoo_site_admin/assets/docs/LaniusVermetten_FINAL_826-09.12892303.pdf.

[57] Jessica Dym Bartlett & Kathryn Steber, *How to Implement Trauma-Informed Care to Build Resilience to Childhood Trauma*, Child Trends, https://www.childtrends.org/publications/how-to-implementtrauma-informed-care-to-build-resilience-to-childhood-trauma (last visited June 18, 2019).

Critically, there is reason for hope. The reason adolescent behavior must be judged differently is because "predictions about adolescents' future character and behavior based on assessments made prior to maturation amount to little more than speculation."[58] There is an "absence of proof that assessments of adolescent behavior will remain stable into adulthood [which] invites unreliable…sentencing based on faulty appraisals of character and future conduct."[59] In other words, given James' age and state of brain development, it would be speculation to assume that he would make the same decision in the future.

Further, James' past history suggests that when he is medicated, he is able to control his moods and anger. The medications he has been taking while incarcerated since August 12, 2017 have successfully controlled his symptoms, although also giving him a flat affect. Therefore, if this court agrees that a sentence less than life is appropriate, a condition of supervised release requiring James to participate in mental health treatment and comply with the recommendations of his treatment providers should help assure the Court that James would not commit another offense in the future.

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[58] Ex. B at 5.
[59] *Id.* (citing Brief for the American Psychological Association and the Missouri Psychological Association as Amici Curiae Supporting Respondent, *supra* note 2, at 24).

III. **The nature and circumstances of the offense reflect the immaturity, irresponsibility, and impetuousness of James' adolescence combined with his mental health diagnoses.**[60]

By the time James drove his car into the crowd on the afternoon of August 12th, he had been sleep-deprived, dehydrated by the hot weather, fatigued by walking, yelled at by counter-protesters, and had urine thrown on him. He was a person ill-equipped to handle such a situation. He had never before been in an uncontrolled crowd situation, and did not have the emotional tools or maturity to react to what confronted him, nor had he been taking medication for his underlying mental health conditions.

Taking a step back, James was not the organizer of the Unite the Right rally held on August 12, 2017. He was not part of any group that planned to attend. While James had absolutely previously posted racist and pro-Hitler comments and photographs to social media accounts, he was never a member of any alt-right or white supremacist organizations. He came alone, with no plan other than to hear some speakers that he followed on Twitter.

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[60] The following information is intended to supplement the summary of the offense conduct contained in paragraphs 4-15, with particular focus on the events that occurred immediately before Fields drove his car into the crowd on Fourth Street, S.E., at approximately 1:53 p.m. on August 12, 2017. Much of the information referenced is found in the "Heaphy Report," Independent Review of the 2017 Protest Events in Charlottesville, Virginia. https://www.policefoundation.org/wp-content/uploads/2017/12/Charlottesville-Critical-Incident-Review-2017.pdf. Also, much of it was introduced at Fields' trial in Charlottesville Circuit Court in November 2018.

Before the Unite the Right rally, he had never attended a political event of any kind—or really any event involving a large crowd. After finding out on Thursday that he could take off work that weekend, he left his apartment in Ohio on Friday evening, and drove straight through the night. After arriving in Charlottesville around 2:00 A.M, he parked at the McDonald's and napped and played video games. At some point on Saturday morning he drove to the Waffle House and ate breakfast. He then returned to the McDonald's parking lot at the corner of Preston Avenue and Ridge-McIntire Street. Although the rally was not supposed to start until noon, James saw that people were walking toward the rally site and followed suit. He was wearing a white polo shirt and khakis, the unofficial attire of the alt-right protestors.

James was in Emancipation Park[61] with the alt-right protestors when the police declared an unlawful assembly and dispersed the crowd. Forcing the alt-right protesters out of the park exacerbated the violence as they were pushed into confrontation with the Antifa counter-protesters. After a morning of yelling, fights, tear gas, and fear, the alt-right protesters and the counter-protesters dispersed in various directions in downtown Charlottesville. James followed a group that walked to McIntire Park where an impromptu rally was supposed to occur, but by the time James arrived that group had dispersed.

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[61] Because it is referred to in all the case documents as Emancipation Park, that is the name that will be uses in this memorandum although it has since been renamed Market Street Park.

On the way from Emancipation Park to McIntire Park, James met three other people walking the same direction. They agreed to walk together for safety's sake on the way back downtown from McIntire Park. Since James' car was closest, he offered to drive everyone else back to their vehicles. After dropping off two of the people at the Jefferson School on 4th Street, N.W., James drove to the Market Street parking garage to drop off the third person.

James had never been to Charlottesville before, and he had relied on his cell phone for directions. After dropping off the last person, he entered "Maumee, Ohio" into his Google Maps application. Confusion ensued. The directions instructed him to continue straight, traveling west on Market Street right past Emancipation Park and eventually coming to the intersection of Preston Avenue and Ridge-Market Street (near the McDonald's where he had parked) where he would turn south and come to I-64. But unbeknownst to Google Maps, the police had left a wooden sawhorse barricade blocking traffic at the intersection of Market Street and 4th Street, N.E., so James could not continue west on Market Street. At the same time, the barricade that the police had put to block the entrance to Fourth Street, N.E., had been moved to the side, leaving that street unobstructed.

James turned down Fourth Street and crossed the Downtown Mall. Three other vehicles had turned down Fourth Street in the minutes before he took that route. It was coincidentally, in these exact minutes, that two crowds of counter-protesters converged on Water Street blocking the intersection. As James pulled up at the bottom of the street, two other cars were ahead of him, unable to proceed

because of the crowd. The third vehicle (a truck) had pulled off to the right of the street to wait. It was then that the crowd of counter-protesters began marching northward on 4th Street.

James was not driving around looking for counter-protesters or anyone else to injure. But he did back up his vehicle and then made the impulsive, angry, and aggressive decision to deliberately drive his car into the gathering crowd. Interviewed immediately after the event, James told police that he was "scared" and that he thought people were "attacking him." He thought that the two cars parked ahead of him on Fourth Street were being "swarmed" by the crowd and that he was next. PSR ¶¶ 11-12. In reality, of course, he was not being attacked, just as the occupants of the two cars ahead of him were not being attacked. Despite that he may have felt trapped, in fact there were no vehicles behind him and he could have backed up and driven away without further incident.

Dr. Cohen's report explains that James has a lifetime history of "outbursts of impulsive aggression when feeling stressed." Ex. A at 2. The most mature, stable personalities would have been tested by the events of August 12. The scene was absolute chaos, lasting several hours, involving hundreds of people, spread out over the entire downtown area, and with authorities seemingly having no control over the situation. There were helicopters overhead, smoke grenades and tear gas in the air, police shouting through bullhorns, numerous acts of public violence overlooked by the police, insults and anti-Semitic chants endlessly repeated, and firearms displayed and discharged. James' impetuousness and bad decision making was

exacerbated in this environment. Of course it must be said plainly that none of this excuses what he did.

IV. The Court should impose this sentence to run concurrently to the sentence that will be imposed in the state.

James will be sentenced for his state convictions in Charlottesville Circuit Court on July 15, 2019, following this sentencing in federal court. As this Court knows, the state jury recommended a sentence of life plus 419 years and $480,000 in fines. As a practical matter, because the parties intend for James to serve whatever sentence this Court imposes in federal custody before serving any state sentence, the state sentence is the one that the Virginia Department of Corrections will interpret for whether or not his state sentence is consecutive or concurrent to his federal sentence. It is also appropriate for the state sentencing judge to make that call because this case was tried in the City of Charlottesville before James pled guilty to these federal charges. To ensure that nothing impedes the state judge from making decision, and consistent with U.S.S.G. § 5G1.3(3), the "sentence for the instant offense shall be imposed to run concurrently to the anticipated term of imprisonment" in the state.

CONCLUSION

To impose a life sentence in this case would require the court to focus almost exclusively on the seriousness of the offense to the exclusion of all other sentencing factors this Court must consider in determining a sentence for James.

James committed a terrible crime and deserves a harsh punishment. This Court must weigh that uncontested fact against other mitigating factors—

particularly his youth, his traumatic childhood, and his mental illness. James did not come to Charlottesville with any plan to commit an act of violence. In the space of only a few minutes, caught in circumstances he did not intend to create, he acted in an aggressive and impulsive manner consistent with his mental health history and his age. In a matter of seconds he caused irreparable harm for which there is no excuse. But this Court can understand his actions, without excusing them, as symptomatic of transient immaturity, and not consider them to be predictive of who he might be in the future with time and medication.

No amount of punishment imposed on James can repair the damage he caused to dozens of innocent people. But this Court should find that retribution has limits. A sentence of life imprisonment would be greater than necessary to comply with the sentencing factors listed in 18 U.S.C. § 3553(a)(2).

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on June 21, 2019, I electronically filed the foregoing with the Clerk of Court using the CM/ECF system, which will send a notification of such filing (ECF) to all parties of record

/s Lisa M. Lorish
Lisa M. Lorish
Assistant Federal Public Defender

DECLARATION OF LAURENCE STEINBERG

I, Laurence Steinberg, declare as follows:

1. My name is Laurence Steinberg. My address is 1924 Pine Street, Philadelphia, Pennsylvania, 19103, USA.

2. I hold the degrees of A.B. in Psychology from Vassar College (Poughkeepsie, New York) and Ph.D. in Human Development and Family Studies from Cornell University (Ithaca, New York).

3. I am a developmental psychologist specializing in adolescence, broadly defined as the second decade of life. Throughout this document, "adolescence" refers to the period of development from age 10 to age 20. Adolescence can be further divided into three phases: early adolescence (10 through 13), middle adolescence (14 through 17) and late adolescence (18 through 20).

4. I am on the faculty at Temple University, in Philadelphia, Pennsylvania, USA, where I am a Distinguished University Professor and the Laura H. Carnell Professor of Psychology. I am a Fellow of the American Psychological Association, the Association for Psychological Science, and the American Academy of Arts and Sciences, and a member of the Society for Research in Child Development and the Society for Research on Adolescence. I was a member of the National Academies' Board on Children, Youth, and Families and chaired the National Academies' Committee on the Science of Adolescence. I was President of the Division of Developmental Psychology of the American Psychological Association and President of the Society for Research on Adolescence.

5. I received my Ph.D. in 1977 and have been continuously engaged in research on adolescent development since that time. I am the author or co-author of approximately 450 scientific articles and 17 books on young people. Prior to my appointment at Temple University, where I have been since 1988, I was on the faculty at the University of Wisconsin—Madison (1983-1988) and the University of California, Irvine (1977-1983). From 1997-2007, I directed the John D. and Catherine T. MacArthur Foundation Research Network on Adolescent Development and Juvenile

Justice, a national multidisciplinary initiative on the implications of research on adolescent development for policy and practice concerning the treatment of juveniles in the legal system. I also have been a member of the MacArthur Foundation Research Network on Law and Neuroscience, a national initiative examining the ways in which neuroscientific research may inform and improve legal policy and practice.

6. Since 1997, I have been engaged in research on the implications of research on adolescent development for legal decisions about the behavior of young people. More specifically, my colleagues and I have been studying whether, to what extent, and in what respects adolescents and adults differ in ways that may inform decisions about the treatment of juveniles under the law.

7. I have been qualified as an expert witness in state courts in Alabama, Alaska, Arizona, Arkansas, California, Colorado, Delaware, Florida, Indiana, Kentucky, Missouri, Nevada, Pennsylvania, and Wisconsin, as well as the United States District Courts for the Southern District of New York, the Eastern District of New York, and the District of Connecticut. I have also been deposed as an expert in cases in California, Colorado, Florida, Pennsylvania, Rhode Island, and Wisconsin; in U.S. District Courts in the Western District of Washington and the District of Colorado; and in the Military Court of Commission Review in Guantanamo Bay, Cuba. In addition, I was the lead scientific consultant for the American Psychological Association (APA) when the Association filed Amicus Curiae briefs in *Miller v. Alabama*, 567 U.S. 460 (2012); *Graham v. Florida*, 560 U.S. 48 (2011); and *Roper v. Simmons*, 543 U.S. 551 (2005). One of my articles, "Less Guilty by Reason of Adolescence," (co-authored with Elizabeth Scott),[1] was cited in the Court's majority opinion in *Roper* and in *Miller*, as was the APA amicus brief that I helped draft.

[1] Steinberg, L., & Scott, E. (2003). Less guilty by reason of adolescence: Developmental immaturity, diminished responsibility, and the juvenile death penalty. *American Psychologist, 58*, 1009-1018.

REFERRAL QUESTION

8. Ms. Lisa Lorish, an Assistant Federal Public Defender in Virginia representing James Fields, requested that I outline the current understanding of neurobiological and psychological development during adolescence, the ways in which neurobiological immaturity impacts behavior and psychosocial development during this period, and the basis for and evolution of the understanding of ongoing behavioral development during these years. I have been specifically asked to summarize the state of the scientific literature on brain and psychological development during late adolescence. In 2018, Mr. Fields was convicted of first degree murder in state court and, in addition, pled guilty to federal hate crime charges, for which federal guidelines mandate a sentence of life without the possibility of parole. The scientific question I have been asked to address in this declaration is whether 20-year-olds also share the attributes of adolescents under 18 that trigger the constitutional protections the U.S. Supreme Court has already recognized for individuals who are younger than 18. Mr. Fields was 20 years old at the time of his offense.

MATERIALS RECEIVED

9. I reviewed copies of the Charlottesville Police Department (CPD) report (140 pages); Detective Young's detailed account of a conversation at the Albemare Charlottesville Regional Jail on August 12, 2017 between Mr. Fields, Detective Young, and the Magistrate (1 page); the FBI's analysis of Mr. Fields's Facebook account and activity (35 pages); several forensic documents, including a CPD evidence log, a schematic map of the area in which the incident took place, and brief statements from Deputy Sheriff Pumphrey, Chief Magistrate Coates, and CPD Sergeant Critzer (9 pages); and a detailed forensic psychiatric evaluation of Mr. Fields prepared by Dr. Brue Cohen (33 pages). All materials were provided to me by counsel for Mr. Fields.

OVERVIEW OF ARGUMENT

10. Over the past two decades, considerable scientific evidence has accumulated demonstrating that, compared to adults, adolescents are more impulsive,

prone to engage in risky and reckless behavior, motivated more by reward than punishment, and less oriented to the future and more to the present. These characteristics of adolescents are now viewed as normative, driven by processes of brain maturation that are not under the control of young people, and typical of normally developing individuals ages 10 through 20 years old.

11. In several landmark cases decided between 2005 and 2016, the U.S. Supreme Court held that these aspects of juvenile immaturity mitigate criminal responsibility in ways that must be taken into account in sentencing decisions.[2]

12. In the past ten years, additional scientific evidence has accrued indicating that many aspects of psychological and neurobiological immaturity characteristic of early adolescents and middle adolescents are also characteristic of late adolescents.

13. Although late adolescents are in some ways similar to individuals in their mid-20s, in other ways, and under certain circumstances, they are more like individuals in early and middle adolescence in their behavior, psychological functioning, and brain development. Developmental science therefore does not support the bright-line boundary that is observed in criminal law under which 18-year-olds are categorically deemed to be adults.[3]

14. The recognition that the same sort of psychological and neurobiological immaturity characteristic of juveniles under the age of 18 also describes individuals from 18 through 20 suggests that the logic reflected in the U.S. Supreme Court decisions in *Roper, Graham*, *Miller*, and *Montgomery v. Louisiana* also applies to late adolescents.

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[2] Steinberg, L. (2013). The influence of neuroscience on U.S. Supreme Court decisions involving adolescents' criminal culpability. *Nature Reviews Neuroscience, 14,* 513-518.

[3] Scott, E., Bonnie, R. & Steinberg, L. (2016). Young adulthood as a transitional legal Category, *Fordham Law Rev*iew, *85*, 641-666.

BRAIN DEVELOPMENT CONTINUES BEYOND THE TEEN YEARS

15. For most of the 20th century, scientists believed that brain maturation ended sometime during late childhood, a conclusion based on the observation that the brain reached its adult size and volume by age 10. This conclusion began to be challenged in the late 1990s, as a result of research that examined the brain's internal anatomy as well as patterns of brain activity, rather than focusing solely on the brain's external appearance.[4]

16. The advent of functional Magnetic Resonance Imaging (fMRI) permitted scientists and researchers to actually observe the brains of living individuals and examine their responses to various stimuli and activities. The results of this examination demonstrated that key brain systems and structures, especially those involved in self-regulation and higher-order cognition, continue to mature throughout adolescence until at least the age of 21 and likely beyond in some areas of function.[5]

17. In response to these revelations about ongoing brain maturation, researchers began to focus on the ways in which adolescent behavior is more accurately characterized as reflecting psychological and neurobiological immaturity.[6] The results of many of these studies and descriptions of adolescent behavior were used by the United States Supreme Court, first in *Roper*, and later in *Graham*, *Miller*, and

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[4] Gogtay, N., et al. (2004). Dynamic mapping of human cortical development during childhood through early adulthood. *Proceedings of the National Academies of Sciences, 101*, 8174–8179; Giedd, J., Blumenthal, J., Jeffries, N., Castellanos, F., Liu, H., Zijdenbos, A., . . . Rapoport, J. (1999). Brain development during childhood and adolescence: a longitudinal MRI study. *Nature Neuroscience.* 2, 861–863; Sowell, E., Thompson, P., Leonard, C., Welcome, S., Kan, E., & Toga, A. (2004). Longitudinal mapping of cortical thickness and brain growth in normal children. *Journal of Neuroscience, 24*, 8223–8231.

[5] Casey, B. J., Tottenham, N., Liston, C., & Durston, S. (2005). Imaging the developing brain: What have we learned about cognitive development? *Trends in Cognitive Science, 9*, 104–110.

[6] Steinberg, L., & Scott, E. (2003). Less guilty by reason of adolescence: Developmental immaturity, diminished responsibility, and the juvenile death penalty. *American Psychologist, 58*, 1009-1018.

Montgomery, as the foundation for the high court's conclusions that adolescents prior to the age of majority should not be treated as adults by the criminal justice system, because their brains and resulting behavior cannot be characterized as fully mature and, as a consequence, that their culpability is not comparable to and should not be equated with that of fully mature adults.[7] In addition, the Court noted that because psychological and neurobiological development were still ongoing in adolescence, individuals were still amenable to change and able to profit from rehabilitation.

18. Further study of brain maturation conducted during the past decade has revealed that several aspects of brain development affecting judgment and decision-making are not only ongoing during early and middle adolescence, but continue at least until age 21. As more research confirming this conclusion accumulated, by 2015 the notion that brain maturation continues into late adolescence became widely accepted among neuroscientists.[8] This contemporary view of brain development as ongoing at

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[7] The American Psychological Association filed briefs as amicus curiae in *Roper*, *Graham*, and *Miller*, outlining the state of neuropsychological and behavioral research on adolescent brain development and behavior for the Court. *See* Brief for the American Psychological Association, American Psychiatric Association, and National Association of Social Workers as Amici Curiae in Support of Petitioners, *Miller v. Alabama*, 567 U.S. 460 (2012) (No. 10-9646); Brief for the American Psychological Association, American Psychiatric Association, National Association of Social Workers, and Mental Health America as Amici Curiae Supporting Petitioners, *Graham v. Florida*, 560 U.S. 48 (2010) (No. 08-7412), *Sullivan v. Florida*, 560 U.S. 181 (2010) (No. 08-7621); Brief for the American Psychological Association, and the Missouri Psychological Association as *Amici Curiae* Supporting Respondent, *Roper v. Simmons*, 543 U.S. 551 (2005) (No. 03-633).

[8] Dosenbach, N., et al. (2011). Prediction of individual brain maturity using fMRI. *Science, 329*, 1358–1361; Fair, D., et al. (2009). Functional brain networks develop from a "local to distributed" organization. *PLoS Computational Biology, 5*, 1–14; Hedman A., van Haren N., Schnack H., Kahn R., & Hulshoff Pol, H. (2012). Human brain changes across the life span: A review of 56 longtitudinal magnetic resonance imaging studies. *Human Brain Mapping, 33*, 1987-2002; Pfefferbaum, A., Rohlfing, T., Rosenbloom, M., Chu, W., & Colrain, I. (2013). Variation in longitudinal trajectories of regional brain volumes of healthy men and women (ages 10 to 85 years) measured with atlas-based parcellation of MRI. *NeuroImage, 65*, 176-193; Simmonds, D., Hallquist, M., Asato, M., & Luna, B. (2014). Developmental stages and sex differences of white matter and behavioral development through adolescence: A longitudinal diffusion tensor imaging (DTI) study. *NeuroImage, 92*, 356-368. Somerville, L., Jones, R., &

least until age 21 stands in marked contrast to the view held by scientists as recently as 15 years ago. We now know that, in many respects, **individuals between 18 and 21 are more neurobiologically similar to younger teenagers than had previously been thought**; their character has not yet been fully formed (as those brain regions most determinant of character are the last to mature), they remain amenable to change, and they are able to profit from rehabilitation. **Accordingly, predictions about adolescents' future character and behavior based on assessments made prior to maturation amount to little more than speculation**. The American Psychological Association's observation in its brief in *Roper* applies to individuals who are 18 as well as to those who are slightly younger: "The absence of proof that assessments of adolescent behavior will remain stable into adulthood invites unreliable… sentencing based on faulty appraisals of character and future conduct."[9]

PSYCHOLOGICAL IMMATURITY IN ADOLESCENCE

19. Research on psychological development during adolescence conducted during the past 15 years also has led scientists to revise longstanding views of this age period. Conclusions drawn from this psychological research parallel those drawn from recent studies of brain development and indicate that **individuals in their late teens and early 20s are less mature than their older counterparts in several important**

Casey, B.J. (2010). A time of change: behavioral and neural correlates of adolescent sensitivity to appetitive and aversive environmental cues. *Brain & Cognition, 72,* 124-133; Tamnes, C., Herting, M., Goddings, A., Meuwese, R., Blakemore, S., Dahl, R., . . . Mills, K. (2017). Development of the cerebral cortex across adolescence: A multisample study of inter-related longitudinal changes in cortical volume, surface area, and thickness. *Journal of Neuroscience, 37,* 3402-3412; Whitaker, K., Vértes, P., Romero-Garcia, R., Váša, F., Moutoussis, M., Prabhu, G., . . . Bullmore E. (2016). Adolescence is associated with genomically patterned consolidation of the hubs of the human brain connectome. PNAS, 113, 9105-9110.

[9] Brief for the American Psychological Association, and the Missouri Psychological Association as *Amici Curiae* Supporting Respondent, *Roper v. Simmons*, 543 U.S. 551 (2005) (No. 03-633), p. 24. The APA Amicus brief in *Roper*, for which I was the lead scientific consultant, and which I helped draft, did not address the death penalty for persons aged 18-20 because this issue was not before the court.

and legally-relevant ways.[10] The results of these psychological studies, including many that have been conducted by my research group, have been found not only in the United States, but around the world.[11]

20. First, adolescents are more likely than adults to underestimate the number, seriousness, and likelihood of risks involved in a given situation. When asked to make a decision about a course of action, compared to adults, adolescents have more difficulty identifying the possible costs and benefits of each alternative, underestimate the chances of various negative consequences occurring, and underestimate the degree to which they could be harmed if the negative consequences occurred.[12]

21. Second, adolescents and people in their early 20s are more likely than older individuals to engage in what psychologists call "sensation-seeking," the pursuit of arousing, rewarding, exciting, or novel experiences. As a consequence of this, young people are more apt to focus on the potential rewards of a given decision than on the potential costs.[13] Other studies have indicated that heightened risk taking among

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[10] Scott, E., Bonnie, R. & Steinberg, L. (2016). Young adulthood as a transitional legal category, *Fordham Law Rev*iew, *85*, 641-666 and Steinberg, L. (2014). *Age of opportunity: Lessons from the new science of adolescence*. New York: Houghton Mifflin, Harcourt.

[11] Duell, N., Steinberg, L., Chein, J., Al-Hassan, S., Bacchini, D., Chang, L, . . . Alampay, L. (2016). Interaction of reward seeking and self-regulation in the prediction of risk taking: A cross-national test of the dual systems model. *Developmental Psychology*, *52*, 1593-1605; Duell, N., Steinberg, L., Icenogle, G., Chein, J., Chaudary, N., Di Giunta, L., . . . Chang, L. (2018). Age patterns in risk taking around the world. *Journal of Youth and Adolescence*, *47*, 1052-1072. Steinberg, L., Icenogle, G., Shulman, E., Breiner, K., Chein, J., Bacchini, D., . . . Takash, H. (2018). Around the world, adolescence is a time of heightened sensation seeking and immature self-regulation. *Developmental Science*, *21*, 1-13.

[12] Grisso, T., Steinberg, L., Woolard, J., Cauffman, E., Scott, E., Graham, S., Lexcen, F., Reppucci, N., & Schwartz, R. (2003). Juveniles' competence to stand trial: A comparison of adolescents' and adults' capacities as trial defendants. *Law and Human Behavior*, *27*, 333-363.

[13] Steinberg, L., Albert, D., Cauffman, E., Banich, M., Graham, S., & Woolard, J. (2008). Age differences in sensation seeking and impulsivity as indexed by behavior and self-report: Evidence for a dual systems model. *Developmental Psychology*, *44*, 1764-1778.

adolescents is due to the greater attention they pay to the potential rewards of a risky choice relative to the potential costs. This tendency is especially pronounced among individuals between the ages of 18 and 21.[14]

22. Third, adolescents and individuals in their early 20s are less able than older individuals to control their impulses and consider the future consequences of their actions and decisions. In general, adolescents are more short-sighted and less planful than adults, and they have more difficulty than adults in foreseeing the possible outcomes of their actions and regulating their behavior accordingly. Importantly, significant gains in impulse control continue to occur beyond age 18 and into the early 20s.[15]

23. Fourth, the development of basic cognitive abilities, including memory and logical reasoning, matures before the development of emotional maturity, including the ability to exercise self-control, rein in sensation seeking, properly consider the risks and rewards of alternative courses of action, and resist coercive pressure from others. Thus, a young person who appears to be intellectually mature may also be socially and emotionally immature.[16]

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[14] Cauffman, E., Shulman, E., Steinberg, L., Claus, E., Banich, M., Graham, S., & Woolard, J. (2010). Age differences in affective decision making as indexed by performance on the Iowa Gambling Task. *Developmental Psychology, 46*, 193-207; Steinberg, L., Icenogle, G., Shulman, E., Breiner, K., Chein, J., Bacchini, D., . . . Takash, H. (2018). Around the world, adolescence is a time of heightened sensation seeking and immature self-regulation. *Developmental Science*, *21*, 1-13.

[15] Steinberg, L., Graham, S., O'Brien, L., Woolard, J., Cauffman, E., & Banich, M. (2009). Age differences in future orientation and delay discounting. *Child Development, 80*, 28-44); Steinberg, L., Albert, D., Cauffman, E., Banich, M., Graham, S., & Woolard, J. (2008) Age differences in sensation seeking and impulsivity as indexed by behavior and self-report: Evidence for a dual systems model. *Developmental Psychology, 44*, 1764-1778; Steinberg, L., Icenogle, G., Shulman, E., Breiner, K., Chein, J., Bacchini, D., . . . Takash, H. (2018). Around the world, adolescence is a time of heightened sensation seeking and immature self-regulation. *Developmental Science*, *21*, 1-13.

[16] Icenogle, G., Steinberg, L., Duell, N., Chein, J., Chang, L., Chaudary, N., . . . Bacchini, D. (2019). Adolescents' cognitive capacity reaches adult levels prior to their psychosocial maturity: Evidence for a "maturity gap" in a multinational sample. *Law and Human Behavior, 43*, 69-85; Steinberg, L., Cauffman, E., Woolard, J., Graham,

24. As a consequence of this gap between intellectual and emotional maturity, the tendencies of adolescents and people in their early 20s, relative to individuals in their mid- or late 20s, to be more focused on rewards, more impulsive, and more myopic are exacerbated when adolescents are making decisions in situations that are emotionally arousing, including those that generate negative emotions, such as fear, threat, anger, or anxiety. Psychologists distinguish between "cold cognition," which refers to the thinking abilities used under calm circumstances, and "hot cognition," which refers to the thinking abilities used under emotionally arousing ones. Adolescents' deficiencies in judgment and self-control, relative to adults, are greater under "hot" circumstances in which emotions are aroused than they are under calmer, "cold" circumstances.[17]

25. Fifth, adolescents' deficiencies in judgment are exacerbated by the presence of peers, a factor that often arouses emotions. It is well established that a disproportionate amount of adolescent and young adult risk taking occurs in the presence of peers.[18] Scientists believe that this is because, when they are with their peers, young people pay relatively more attention to the potential rewards of a risky decision than they do when they are alone, and when they are with their peers they are especially drawn to immediate rewards, including both material rewards (e.g., money,

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S., & Banich, M. (2009). Are adolescents less mature than adults? Minors' access to abortion, the juvenile death penalty, and the alleged APA "flip-flop". *American Psychologist*, *64*, 583-594.

[17] Cohen, A., Breiner, K., Steinberg, L., Bonnie, R., Scott, E., Taylor-Thompson, K., . . . Casey, B.J. (2016). When is an adolescent an adult? Assessing cognitive control in emotional and non-emotional contexts. *Psychological Science*, *4*, 549-562; Steinberg, L. (2014). *Age of opportunity: Lessons From the New Science of Adolescence*. New York: Houghton Mifflin Harcourt; Steinberg, L., Cauffman, E., Woolard, J., Graham, S., & Banich, M. (2009). Are adolescents less mature than adults? Minors' access to abortion, the juvenile death penalty, and the alleged APA "flip-flop". *American Psychologist*, *64*, 583-594.

[18] Albert, D., & Steinberg, L. (2011). Peer influences on adolescent risk behavior. In M. Bardo, D. Fishbein, & R. Milich (Eds.), *Inhibitory control and drug abuse prevention: From research to translation*. (Part 3, pp. 211-226). New York: Springer.

drugs) as well as social rewards (e.g., praise, the admiration of others).[19] In our research lab, we have shown that the mere presence of peers activates the brain's "reward center" among adolescents and people in their early 20s, but has no such effect on adults.[20]

26. My colleagues and I have found that these peer effects on risk taking and attentiveness to rewards occur regardless of the number of peers present, their degree of familiarity with one another, and whether the peers are real or illusory. Brain imaging studies show that adolescents are especially sensitive to social rejection, which may make conforming to one's peers especially important.[21] That a much greater proportion of juvenile crimes, compared to adult crimes, occur when individuals are in groups is consistent with these data.[22]

27. The combination of heightened attentiveness to rewards and still-maturing impulse control makes middle and late adolescence a time of greater risk-taking than any other stage of development. This has been demonstrated both in studies of risk-taking in psychological experiments (when other factors, such as outside

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[19] O'Brien, L., Albert, D., Chein, J., & Steinberg, L. (2011). Adolescents prefer more immediate rewards when in the presence of their peers. *Journal of Research on Adolescence*, *21*, 747-753; Silva, K., Patrianakos, J., Chein, J., & Steinberg, L. (2017). Joint effects of peer pressure and fatigue on risk and reward processing in adolescence. *Journal of Youth and Adolescence*, *46*, 1878-1890; Weigard, A., Chein, J., Albert, D., Smith, A., & Steinberg, L. (2014). Effects of anonymous peer observation on adolescents' preference for immediate rewards. *Developmental Science*, *17*, 71-78.

[20] Chein, J., Albert, D., O'Brien, L., Uckert, K., & Steinberg, L. (2011). Peers increase adolescent risk taking by enhancing activity in the brain's reward circuitry. *Developmental Science*, *14*, F1–F10; Smith, A., Steinberg, L., Strang, N., & Chein, J. (2015). Age differences in the impact of peers on adolescents' and adults' neural response to reward. *Developmental Cognitive Neuroscience*, *11*, 75-82.

[21] Blakemore, S-J. (2008). The social brain in adolescence. *Nature Reviews Neuroscience*, *9*, 267-277; Somerville, L. (2013). The teenage brain: Sensitivity to social evaluation. *Current Directions in Psychological Science*, *22*, 121-127.

[22] Zimring, F., & Laquear, H. (2015). Kids, groups, and crime: In defense of conventional wisdom. *Journal of Research in Crime and Delinquency*, *52*, 403-415.

influences, can be controlled) and in the analysis of data on risky behavior in the real world.[23]

28. In recent experimental studies of risk-taking, the peak age for risky decision-making has been determined to be in the late teens and early 20s.[24] This age trend is consistent with epidemiological data on age trends in risky behavior, which show peaks in the adverse outcomes of risk-taking in the late teens and early 20s in a wide range of behaviors, including driver deaths, unintended pregnancy, arrests for violent and non-violent crime, and binge drinking.[25]

NEUROBIOLOGICAL ACCOUNTS OF ADOLESCENT IMMATURITY

29. Many scientists, including myself, believe that the main underlying cause of psychological immaturity during adolescence and the early 20s is the different timetables along which two important brain systems change during this period, sometimes referred to as a "maturational imbalance."[26] The system that is responsible for the increase in sensation-seeking and reward-seeking that takes place in adolescence, which is localized mainly in the brain's limbic system, undergoes dramatic changes very early in adolescence, around the time of puberty. Attentiveness to rewards remains high

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[23] Duell, N., Steinberg, L., Icenogle, G., Chein, J., Chaudary, N., Di Giunta, L., . . . Chang, L. (2018). Age patterns in risk taking around the world. *Journal of Youth and Adolescence*, *47*, 1052-1072.

[24] Braams, B., van Duijvenvoorde, A., Peper, J., & Crone, E. (2015). Longitudinal changes in adolescent risk-taking: A comprehensive study of neural responses to rewards, pubertal development and risk taking behavior. *Journal of Neuroscience*, *35*, 7226-7238; Shulman, E., & Cauffman, E. (2014). Deciding in the dark: Age differences in intuitive risk judgment. *Developmental Psychology*, *50*, 167-177.

[25] Willoughby, T., Good, M., Adachi, P., Hamza, C., & Tavernier, R. (2013). Examining the link between adolescent brain development and risk taking from a social-developmental perspective. *Brain and Cognition*, *83*, 315-323.

[26] Casey, B. J., et al. (2010). The storm and stress of adolescence: Insights from human imaging and mouse genetics. *Developmental Psychobiology*, *52*, 225-235; Shulman, E., Smith, A., Silva, K., Icenogle, G., Duell, N., Chein, J., & Steinberg, L. (2016). The dual systems model: Review, reappraisal, and reaffirmation. *Developmental Cognitive Neuroscience*, *17*, 103-117.

through the late teen years and into the early 20s. But the system that is responsible for self-control, regulating impulses, thinking ahead, evaluating the rewards and costs of a risky act, and resisting peer pressure, which is localized mainly in the prefrontal cortex, is still undergoing significant maturation well into the mid-20s.[27]

30. Thus, during middle and late adolescence there is an imbalance between the reward system and the self-control system that inclines adolescents toward sensation-seeking and impulsivity. As this "maturational imbalance" diminishes, during the mid-20s, there are improvements in such capacities as impulse control, resistance to peer pressure, planning, and thinking ahead.[28]

31. Studies of structural and functional development of the brain are consistent with this view. Specifically, **research on neurobiological development shows continued maturation into the early or even mid-20s of brain regions and systems that govern various aspects of self-regulation** and higher-order cognitive function. These developments involve structural (i.e., in the brain's anatomy) and functional (i.e., in the brain's activity) changes in the prefrontal and parietal cortices, as well as improved structural and functional connectivity between the limbic system and the prefrontal cortex. The structural changes are primarily the result of two processes: synaptic pruning (the elimination of unnecessary connections between neurons, which allows the brain to transmit information more efficiently), and myelination (the growth of sheaths of myelin around neuronal connections, which functions as a form of insulation that allows the brain to transmit information more quickly). Although the

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[27] Shulman, E., Harden, K., Chein, J., & Steinberg, L. (2015). Sex differences in the developmental trajectories of impulse control and sensation-seeking from early adolescence to early adulthood. *Journal of Youth and Adolescence, 44*, 1-17; Steinberg, L. (2008). A social neuroscience perspective on adolescent risk-taking. D*evelopmental Review, 28*, 78-106; Van Leijenhorst, L., Moor, B. G., Op de Macks, Z. A., Rombouts, S. A. R. B., Westenberg, P. M., & Crone, E. A. (2010). Adolescent risky decisionmaking: Neurocognitive development of reward and control regions. *NeuroImage, 51*, 345–355.

[28] Albert, D., & Steinberg, L. (2011). Judgment and decision making in adolescence. *Journal of Research on Adolescence, 21*, 211-224; Blakemore, S-J., & T. Robbins, T. (2012). Decision-making in the adolescent brain. *Nature Neuroscience, 15*, 1184-1191.

process of synaptic pruning is largely finished by age 16, myelination continues into the late teens and throughout the 20s.[29]

32. Thus, although the development of the prefrontal cortex is largely complete by the end of middle adolescence, the maturation of connections between this region and regions that govern self-regulation and the brain's emotional centers, facilitated by the continued myelination of these connections, continues into late adolescence (at least through age 20) and may not be complete until the mid-20s.[30] As a consequence, late adolescents often have difficulty controlling their impulses, especially in emotionally arousing situations.

33. Recent studies that my colleagues and I conducted, of middle adolescents, late adolescents, and individuals in their mid-20s, illustrate this point. We assessed individuals' impulse control and brain activity while experimentally manipulating their emotional state. Under conditions during which individuals were not emotionally aroused, individuals between 18 and 21 exhibited impulse control and patterns of brain activity comparable to those in their mid-20s. But under emotionally arousing conditions, 18- to 21-year-olds demonstrated levels of impulsive behavior and patterns of brain activity that were comparable to those in their mid-teens.[31] In other

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[29] For reviews of changes in brain structure and function during adolescence and young adulthood, see Blakemore, S-J. (2012). Imaging brain development: The adolescent brain. *Neuroimage, 61*, 397-406; Engle, R. (2013). The teen brain. *Current Directions in Psychological Science, 22 (2)* (whole issue); and Luciana, M. (Ed.) (2010). Adolescent brain development: Current themes and future directions. *Brain and Cognition, 72* (2), whole issue; and Spear, L., & Silveri, M. (2016). Special issue on the adolescent brain. *Neuroscience and Biobehavioral Reviews, 70* (whole issue).

[30] Khundrakpam, B, Lewis, J., Zhao, L., Chouinard-Decorte, F., & Evans, A. (2016). Brain connectivity in normally developing children and adolescents. *NeuroImage, 134*, 192-203.

[31] Cohen, et al. (2016). When is an adolescent an adult? Assessing cognitive control in emotional and non-emotional contexts. *Psychological Science, 4*, 549-562; Rudolph, M., Miranda-Dominguez, O., Cohen, A., Breiner, K., Steinberg, L., . . . Fair, D. (2017). At risk of being risky: The relationship between "brain age" under emotional states and risk preference. *Developmental Cognitive Neuroscience, 24*, 93-106.

words, under some circumstances, the brain of a 18- to 21-year-old functions in ways that are similar to that of a 16- or 17-year old.

DESISTANCE FROM CRIME AFTER YOUNG ADULTHOOD

34. Research in developmental psychology has produced a growing understanding of the ways in which normative psychological maturation contributes to desistance from crime. My colleagues and I have shown that normal and expected improvements in self-control, resistance to peer pressure, and future orientation, which occur in most individuals, are related to desistance from crime during the late adolescent and young adult years.[32]

35. Scientists have also shown that the human brain is malleable, or "plastic." Neuroplasticity refers to the potential for the brain to be modified by experience. Certain periods in development appear to be times of greater neuroplasticity than others. There is growing consensus that there is considerable neuroplasticity in adolescence, which suggests that during those time periods, there are greater opportunities for individuals to change.[33] In *Graham*, the United States Supreme Court,

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[32] Monahan, K., Steinberg, L., & Cauffman, E. (2009). Affiliation with antisocial peers, susceptibility to peer influence, and desistance from antisocial behavior during the transition to adulthood. *Developmental Psychology, 45*, 1520-1530; and Monahan, K., Steinberg, L., Cauffman, E., & Mulvey, E. (2009). Trajectories of antisocial behavior and psychosocial maturity from adolescence to young adulthood. *Developmental Psychology, 45*, 1654-1668). This observation is consistent with findings from developmental neuroscience, noted earlier (for example, Liston, C., Watts, R., Tottenham, N., Davidson, M., Niogi, S., Ulug, A., & Casey, B.J. (2006). Frontostriatal microstructure predicts individual differences in cognitive control. *Cerebral Cortex, 16,* 553-560).

[33] For a discussion of adolescent neuroplasticity, see Guyer, A., Peréz-Edgar, K., & Crone, E., (2018). Opportunities for neurodevelopmental plasticity from infancy through early adulthood. Child Development, 89, 687-297; Kays, J., Hurley, R., Taber, K. (2012). The dynamic brain: Neuroplasticity and mental health. *Journal of Clinical Neuropsychiatry and Clinical Neuroscience, 24*, 118-124; Steinberg, L. (2014). *Age of Opportunity: Lessons From the New Science of Adolescence*. New York: Houghton Mifflin Harcourt; and Thomas, M., & Johnson, M. (2008). New advances in understanding sensitive periods in brain development. *Current Directions in Psychological Science,* 17, 1-5.

recognized that adolescents' brains were not fully developed, and that it was this lack of maturity and capacity for growth that led to Court's holding that youth who commit serious crimes must have an opportunity for release based on demonstrated maturity and rehabilitation.

36. Very few individuals who have committed crimes as juveniles continue offending beyond their mid-20s. My colleagues and I have found, as have other researchers, that approximately 90 percent of serious juvenile offenders age out of crime and do not continue criminal behavior into adulthood.[34]

37. Longitudinal studies that document this pattern of desistance are consistent with epidemiological evidence on the relation between age and crime. In general, sociological studies demonstrate what scientists describe as an "age-crime curve," which shows that, in the aggregate, crime peaks in the late teen years, and declines during the early 20s.[35] For example, according to recent data from the United States. Bureau of Justice Statistics, on arrest rates as a function of age, arrests for property crime and for violent crime increase between 10 and 19 years, peak at 19, and decline thereafter, most dramatically after 25.[36] This is a robust pattern observed not only in the United States, but across the industrialized world and over historical time.[37]

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[34] Monahan, K., Steinberg, L., Cauffman, E., & Mulvey, E. (2013). Psychosocial (im)maturity from adolescence to early adulthood: Distinguishing between adolescence-limited and persistent antisocial behavior. *Development and Psychopathology*, 25, 1093–1105; and Mulvey, E., Steinberg, L., Piquero, A., Besana, M., Fagan, J., Schubert, C., & Cauffman, E. (2010). Trajectories of desistance and continuity in antisocial behavior following court adjudication among serious adolescent offenders. *Development and Psychopathology*, *22*, 453-475.

[35] Sweeten, G., Piquero, A., & Steinberg, L. (2013). Age and the explanation of crime, revisited. *Journal of Youth and Adolescence*, *42*, 921-938.

[36] Snyder, H., Cooper, A., &, Mulako-Wangota, J. (2016). *Arrest data analysis tool*. Washington: Bureau of Justice Statistics.

[37] Farrington, D. (1986). Age and crime. In M. Tonry & N. Morris (Eds.), *Crime and justice: An annual review of research, vol. 7* (pp. 189-250). Chicago: University of Chicago Press; Hirschi, T., & Gottfredson, M. (1983). Age and the explanation of crime. *American Journal of Sociology, 89*, 552-84; and Piquero, A., Farrington, D., & Blumstein, A. (2007). *Key issues in criminal careers research: New analysis from the Cambridge study in delinquent development*. Cambridge: Cambridge University Press.

38. Research in developmental psychology has produced a growing understanding of the ways in which normative psychological maturation contributes to desistance from crime. My colleagues and I have shown that normal and expected improvements in self-control, resistance to peer pressure, and future orientation, are related to desistance from crime during the late adolescent and young adult years.[38] This observation is consistent with findings from developmental neuroscience, noted earlier.[39]

39. In summary, there is strong scientific evidence that (1) most juvenile offending reflects transient developmental immaturity rather than irreparably bad character; (2) this developmental immaturity has been linked to predictable patterns of structural and functional brain development during adolescence; (3) this process of brain maturation continues through the late teens and into the early 20s; (4) the adolescent brain is especially "plastic," or susceptible to environmental influence, which makes juveniles more amenable to rehabilitation; and (5) the vast majority of juvenile offenders age out of crime as they mature into their mid-20s.

CONCLUSION

40. Extensive studies demonstrate that important neurobiological development is ongoing throughout the teenage years and continues into the early 20s. As a result of neurobiological immaturity, young people, even those past the age of majority, continue to demonstrate difficulties in exercising self-restraint, controlling impulses, considering future consequences, making decisions independently from their peers, and resisting the coercive influence of others. Heightened susceptibility to

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[38] Monahan, K., Steinberg, L., & Cauffman, E. (2009). Affiliation with antisocial peers, susceptibility to peer influence, and desistance from antisocial behavior during the transition to adulthood. *Developmental Psychology*, *45*, 1520-1530; Monahan, K., Steinberg, L., Cauffman, E., & Mulvey, E. (2009). Trajectories of antisocial behavior and psychosocial maturity from adolescence to young adulthood. *Developmental Psychology*, *45*, 1654-1668.

[39] For example, see Liston, C., Watts, R., Tottenham, N., Davidson, M., Niogi, S., Ulug, A., & Casey, B.J. (2006). Frontostriatal microstructure predicts individual differences in cognitive control. *Cerebral Cortex*, *16*, 553-560.

emotionally laden and socially charged situations renders adolescents more vulnerable to the influence of others, and in such situations young people are even less able to consider and weigh the risks and consequences of a chosen course of action.[40] **Many of the same immaturities that characterize the brains of individuals younger than 18, and that have been found to mitigate their criminal culpability, are characteristic of the brains of individuals from 18 through at least age 20**.

41. **Criminal acts committed by adolescents, even those past the age of majority, are best understood in light of their neurobiological and psychological immaturity. For this reason, it is inappropriate to assign the same degree of culpability to criminal acts committed at this age to that which would be assigned to the behavior of a fully mature and responsible adult**.

42. In his majority opinion in *Roper v. Simmons*, Justice Kennedy noted three characteristics of juveniles that diminish their criminal responsibility: their impetuosity, their susceptibility to peer influence, and their capacity to change. In Justice Kennedy's opinion in *Graham v. Florida*, as well as Justice Kagan's opinion in *Miller v. Alabama*, the Court noted that the characterization of juveniles as inherently less mature than adults, and therefore less responsible for their crimes, was supported by a growing scientific literature affirming adolescents' neurobiological as well as psychological immaturity.[41] In the seven years that have elapsed since *Miller*, more scientific evidence consistent with these arguments has continued to accrue.

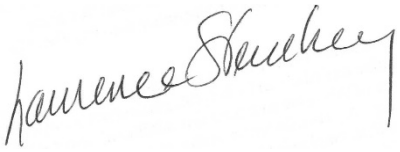
43. Recent discoveries in psychological and brain science, as well as changes in society, should ask us to rethink how we view people in late adolescence and young adulthood with respect to their treatment under the law. It is now clear that neurobiological and psychological immaturity of the sort that the Supreme Court referenced in its opinions on the diminished culpability of minors is also characteristic of individuals in their late teens and early 20s. **Certainly, there is no scientific evidence**

[40] Scott, E., Duell, N., & Steinberg, L. (2018). Brain development, social context, and justice policy. *Washington University Journal of Law and Policy*, *57*, 13-74.

[41] Steinberg, L. (2017). Adolescent brain science and juvenile justice policymaking. *Psychology, Public Policy, and Law*, *23*, 410-420.

to suggest that a meaningful psychological or neurobiological distinction can be drawn between individuals who are nearly 18 years old and those who are between 18 and 21. Thus, for the very same reason that the Supreme Court found capital punishment and mandatory life with parole to be unconstitutional in cases involving defendants under the age of 18, these penalties also should be prohibited in cases involving defendants who are younger tnan 21.

44. I believe that the facts I have stated in this report are true and that the opinions I have expressed are within a reasonable degree of scientific certainty.



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June 7, 2018