

READING THE IMAGE OF RACE: NEUROCRIMINOLOGY, MEDICAL IMAGING TECHNOLOGIES AND LITERARY INTERVENTION

Lindsey Andrews and Jonathan M. Metzl

Introduction

ON 26 APRIL 2013, the *Wall Street Journal* published an essay by neurocriminologist Adrian Raine promoting his newest book, *The Anatomy of Violence: The Biological Roots of Crime*. On the newspaper's website, an image of a black-and-white brain scan overlaid with handcuffs headed the essay. Clicking 'play' turned the image into a video filled with three-dimensional brain illustrations and Raine's claims that some brains are simply more biologically prone to violence than others. Rejecting what he describes as 'the dominant model for understanding criminal behaviour in the twentieth century' – a model based 'almost exclusively on social and sociological' explanations¹ – Raine wrote that 'the genetic basis of criminal behaviour is now well established' through molecular and behavioural genetics.² More importantly for Raine, medical imaging techniques (MIs), including magnetic resonance imaging (MRI), positron emission tomography (PET) and computerised axial tomography (CAT), helped researchers pinpoint the physical location of an individual's genetic inheritance and disposition to violent crime. According to Raine, a leader in the field, neurocriminology is indebted to advances in brain imaging, which not only show that violent criminality is a disease, but also offer diagnostic possibilities that may lead to more effective forms of treatment for those predisposed to crime.

Raine's widely reviewed and disseminated book serves as an example of a number of popular texts that have appeared in the past several decades that use the techniques of neuroscience to bolster theories about the relationships between biology and behaviour – speculations that carry with them embedded cultural ideas about race or gender. Raine, an endowed professor of psychiatry and criminology at the University of Pennsylvania, provides a particularly important example, as his book attempts to de-race one of the most racially charged of contemporary discourses in the US, criminology, through appeals to the cultural neutrality of neuroscience imaging. Paradoxically, in order to do so, *The Anatomy of Violence* reclaims the troubling legacy of Cesare Lombroso, the nineteenth-century psychologist, anthropologist and eugenicist

often described as the father of criminology. In a contemporary era supposed to have overcome the overt racism of previous centuries, Raine therefore finds himself necessarily emphasising his distance from Lombroso's racial taxonomies. While lauding Lombroso's 'emphasis on physiology and brain traits', which 'proved to be prescient',³ Raine simultaneously rejects his theory of 'atavistic stigmata' that marked particular racial groups as evolutionarily regressive and prone to criminality.⁴ Raine's rejection is in part framed as autobiographical indignation: 'Of course I reject Lombroso's evolutionary scale that placed Northern Italians at the top and Southern Italians at the bottom,' he writes. 'Not least of all because I am half [Southern] Italian . . . I am not an evolutionary throwback to a primitive species.'⁵

While Raine points to his own identity as an obvious indicator of the post-racial nature of neurocriminology, his protestations mask the emergence of racialisation in newly coded ways in the contemporary era. He presents 'proof' of the relationships between brain physiology and psychological abnormality as objective, empirical and value-neutral, deferring repeatedly to brain scans, which are machine-mediated and must therefore, surely, be race-blind. In light of high-tech and precise imaging practices, investment in race appears biologically suspect or anachronistic – dependent on racial categories, such as Northern and Southern Italians, which are now, at least in the US, laughably outdated.⁶ At the same time, Raine manages to avoid any discussion of the most obvious racial problems that pervade current law enforcement and criminological practices, such as racial profiling and the over-representation of men of colour in the penal system. He also fails to acknowledge in any substantial way the continued use of race as a taxonomic category in the studies he cites. His work then capitalises on the fantasy of a 'post-racial' America that need not attend to embedded structures of race and racism as it simultaneously builds on a multi-decade-long resurgence of cultural investment in biological determinism, which had once fuelled race science.⁷

Raine's timing could not have been more fortuitous: a mere few weeks before the article's publication, US President Barack Obama revealed that \$100 million in funding would go to an expansive brain mapping initiative, which he billed as 'the next great American project'.⁸ Although official announcements focused on the project's potential medical implications – such as treating mood disorders or brain injuries – scientists and journalists alike soon began to speculate about the ways in which brain mapping could enhance knowledge about crime, in terms of both predictability and personal responsibility. For those involved in the project and for Raine, brain imaging could give access to a truth about the self that operates, unclouded by ideas about race or ethnicity, at levels of biological substrates and brain structures that are seemingly the same in all peoples.⁹

In this chapter we argue that MIs are never separable from their cultural contexts, and that their legibility emerges within a racialised legacy of image production both within and outside of medicine in the US. We maintain that investigation into the racialised interpretation and circulation of MIs is necessary for understanding their deployment in contemporary medical and paramedical contexts.

While work in the medical humanities has been especially attuned to considering the ways in which medical knowledge is embedded in culture, attention to race within the field has primarily focused on individual racial and ethnic difference between doctors and patients. Yet, as Jonathan M. Metzler demonstrates in *The Prosthetic Psychosis*, race is embedded not in individuals, but in the very structure of diagnostic medicine.¹⁰ Here, we further that argument by showing how diagnostic visualisation technologies are not themselves race-neutral tools, but tools whose utility and desirability are caught up in a racialised history of psychology that has depended on raced imagery.

In what follows, we first offer a brief critical history of the hermeneutic practices for reading images that characterised diagnostic use of early machine-mediated medical images, especially photography, which are still borne in the legacy of contemporary MIs. We suggest that mid-century literary writers, especially those pathologised by the proliferation of diagnostic photography and medical imaging, were especially attuned to the linguistic practices required to give meaning to the visualisation of psychic symptomatology. Examining Ralph Ellison's 1952 novel, *Invisible Man*, which explored relationships between vision, race and psychological knowledge, we argue that his ekphrastic practice – using linguistic strategies to describe visual images and their production – reveals medical images' non-transparency and the interpretative practices that construct their meaning, giving us critical tools for understanding the interplay of language, text and visuality in contemporary medical imaging. In particular, we show how Ellison's parody of white neurologists involved in early psychosurgery extracts the tacit cultural assumptions about race that guide supposedly value-neutral scientific practice, privileging white psychological experience as an unmarked 'normal' and obscuring the doctors' capacity to see or value black psychic interiority as substantial or non-pathological. Placing Ellison's parody of racialised neurological discourse in parataxis with Raine's contemporary interpretations of MIs – especially as they circulate in his popular text and interviews – shows how even today's supposedly value-neutral images reinforce a conception of white psychological normality, inadvertently presenting the 'abnormal' brain functioning of white patients – most notably white men – as both particularly exceptional and physiologically separable from the white self, and therefore curable, while aberrance continues to appear as the natural functioning of non-white psychology.

Machinic Images: Exteriorising the Racial Interior

Underlying both Raine's efforts and other brain-mapping projects is an assumption of the transparency and desirability of highly technical imaging techniques, as well as a seeming conflation of seeing, knowing and curing – that is, the idea that if we see it, we know it, and will therefore be able to cure it. The popularity of these technologies, among patients and clinicians alike, is bolstered by a cultural perception of machinic vision as unmediated access to the real, as well as an assumption that quantitative data and highly technical processes necessarily bolster expertise.¹¹

Physicians once depended on the hand-drawn depictions of anatomical interiors – interiors that, no matter how faithfully rendered, bore the marks of interpretation by individual artists – but from the moment of Wilhelm Röntgen’s harnessing of the X-ray in 1895, machine mediation promised to make visible the body’s interior with a technical accuracy unavailable to a human artist.¹² Indeed, visualisation technologies and the metaphor of ‘mapping’ – applied to both the genome and the brain – are appealing and reassuring because such images imply ‘proof’ of and mastery over locatable and culturally neutral biological entities.¹³

As a number of race scholars have shown, medical faith in machine-based diagnostics, far from correcting racial bias, often helps to embed and invisibilise it within larger medical practices and structures. For example, Lundy Braun’s *Breathing Race into the Machine* demonstrates how the automation of the spirometer naturalised and masked the use of ‘race correction’ for lung capacity measurements – a practice that emerged largely in response to insurance concerns over workers’ compensation – despite there being no biological difference between black and white lungs.¹⁴ And Erica Fretwell has shown how foetal sonograms – produced in medical contexts but more often deployed for affective rather than diagnostic purposes – circulate to reinforce a conception of white innocence and national belonging.¹⁵ These scholars help us to understand how machine-aided medical knowledge reflects the social contexts from which it emerges. MIs, embedded in a particularly racialised set of interpretive practices, are no exception.

The importance of visualisation, metaphorically and actually, in clinical practice is described by Michel Foucault as emerging in the eighteenth century with the rise of the ‘clinical gaze’. In *The Birth of the Clinic*, Foucault suggests that the modern medical enterprise was directed towards the visual revelation – that is, the ‘exteriorisation’ – of what had formerly been ‘enclosed’ by the body, unavailable to sight, and by consequence, to knowledge.¹⁶ In many ways, then, what medical historians call the ‘visual turn’ in medicine – the era from the 1970s onward, marked by the exponential increase in machine-based imaging technologies that offered new ways of seeing inside the body, including the brain – merely offered a new iteration of an old theme. Even before machine-based technologies such as MRI or PET were used to register and render bodily interiors, machine-based images were already imagined to index interiority, and in particular, psychological interiority, as it was written on the body and captured by the photograph.

By the middle of the nineteenth century, early psychologists, criminologists, neurologists and phrenologists used photography for diagnostic purposes. Crucially, photographs were used to image not normalcy but abnormality. For example, French neurologist Jean-Martin Charcot photographed hysterics at his famed Salpêtrière clinic as part of the diagnostic process, capturing facial expressions and visual cues that indexed particular psychological maladies.¹⁷ Simultaneously, photography’s apparent capacity to capture the external, physical signs of interiority inspired late nineteenth-century phrenological and eugenic portraiture.¹⁸ Perhaps most famously, Francis Galton developed a technique known as ‘composite photography’, which overlaid multiple photographs of, for example, known criminals or a racial group in

order to produce a single image of a ‘type’, resulting in a machine-mediated visual typology of human ‘abnormality’.¹⁹ These images helped to cement the idea of an exterior marked by the traits of an individual’s interior, and the transparent and transferable truth of the photograph could then be used to train doctors and criminologists alike – as well as the curious public – to see psychological pathology on the surface of the body, allowing them to know, treat, and/or discipline deviance.

A similar ‘visual turn’ occurred in the US in the early decades of the twentieth century, thanks in large part to the 200,000-plus photographs produced by the storied Historical Section of the Farm Security Administration (FSA), and the vast body of documentary and commercial work they inspired. As visual and literary scholar Sara Blair notes, ‘the years from the New Deal to the World War II era [were] a historical moment when the aesthetics of public life were deeply indebted to [these] photographic canons.’²⁰ Although the photographs appeared to ‘document’ the ‘truth’ of the effects of the Great Depression, recovery and the Great Migration, they instead staged and ‘churned out images of dispossessed sharecroppers, despairing inner city tenement dwellers, and black dispossession from modernity’, making racial and economic ‘inferiority’ appear ‘natural’ and biological in the ‘reductive typology of the New Deal documentary gaze’.²¹ Social and psychological diagnostics and plans for therapeutics emerged from these photographic practices, yet, as scholars of visual studies and race have noted, the imagined transparency of the photograph on which they depended actually invented and trained the US’s particular racial gaze, teaching viewers to ‘recognise’ race and associate it with particular behaviours, modes of dress or living conditions, thus inventing and concretising racial types and stereotypes.²²

This fact was not lost on black writers and artists of the period, such as Richard Wright, Nella Larsen and Ralph Ellison, who questioned the relationships between vision and knowledge about black nature, social life and psychology, while simultaneously exposing the unintended racial codes and interpretative practices demanded of documentary techniques.²³ As we detail below, Ellison in particular destabilised the meaning of photography through literary invention that interpreted imaging practices, thus challenging the correspondence between surface image and interior referent, skin and self.

Visualising Minds: Contemporary Medical Imaging, Race, and the Self

In a contemporary context, MIs are often deployed to suggest that a biological entity, separable from ‘self’ or mind, might be the cause of psychological pathology. Although MIs themselves are rarely accompanied by demographic labels such as race, the larger stories in which they are embedded often focus on white, middle and upper-class patients who tend to have greater access to advanced medical technologies. Unacknowledged racial disparities, far from ‘de-racing’ the story of the images, hide racial assumptions about selves, their matter and meaning.

The authority of contemporary imaging practices and the story they tell depends on the historical construction of the photograph as indexical evidence for the study of psychology and sociology.²⁴ As a number of medical historians and visual studies theorists have noted, knowledge from medical images is not 'given' or transparent; these images require interpretation, and their interpretation is embedded in language.²⁵ MIs, in fact, use no photographic lens to produce their images; they are anthropomorphised, graphic renderings of data that could otherwise be represented as a chart or a graph, and their meaning is often ambiguous in clinical contexts, but becomes stabilised through popular circulation. Yet, even those cultural critics and historians who expose the complexities and limits of medical imaging technologies, as well as their dependence on cultural contexts and circulation for meaning and authority, have little to say about any contemporary relationship between race and medical imaging.²⁶ One might assume from these texts – corroborating Raine's own assumption of the post-racial nature of a neurocriminology dependent on MIs – that the images themselves are de-raced.

Today, the historical imaging practices that were once offered as, say, phrenological or eugenic evidence, linking the visible surface of the body to psychological pathology and biological inferiority, seem outdated examples of pseudoscience. The sophisticated imaging practices deployed in the present render bodily interiors that seem unmarked by the racial codes of what anti-colonial psychologist Frantz Fanon called 'epidermalisation' – the 'fact of blackness' written on/as the skin.²⁷ And yet, the undergirding assumptions of racially inflected sciences such as craniology that so appealed to Lombroso – assumptions about the correspondence between visible, localised physiological features and internal faculties of the mind – remain embedded in segments of contemporary biopsychiatry and neuroscience.²⁸

Along these lines, medical anthropologist Joseph Dumit notes that, for neuroscientists, questions about brain localisation were the right questions; phrenologists had simply used the wrong technology.²⁹ For example, the areas of the brain imaged and mapped by PET correspond to 'a moral circuit, reasoning, anxiety, social skills, sexuality, intelligence, learning, language, word generation, colour perception, form perception, and various kinds of memory' and are 'similar to the kinds of faculties mapped by the phrenologists'.³⁰ Yet phrenologists only had access to the visible and tactile exterior of the skull. The arrival of MRI and PET in the 1980s and 1990s seemed to provide new and necessary technologies for seeing neurological interiors, and the contemporary circulation of their images seems to confirm the facticity of a localised and visible correspondence between brain function and behaviour.

MRI and PET technologies use machines to register movements inside the body and render those movements as anatomical images. While MRI provides information about the placement and activity of hydrogen atoms in the body,³¹ PET traces the movement of a radioactive isotope, rendered as cross-sectional views through time.³² As Kelly Joyce notes, the choice to present MR information *as* images was highly contested and culturally specific. Some early users of nuclear magnetic resonance (NMR) imaging, the technology that would eventually become MRI, resisted translating the

numerical data of the technology into anthropomorphic images that bore no necessary relationship to the information produced. For that reason, for the first several decades of use, MR images were presented in scientific and medical publications as both numerical and pictorial information. Eventually, due largely to practical aspects of clinical diagnostics, images became the primary output of MRI; radiologists who had already been trained to read images could also use their sensorial attunement to read the fine gradation of MRI, which meant that MRI assessment could be handled by existing radiology departments.³³

The move to visualisation was particularly fortuitous for the makers of PET, whose images were rendered in colour, unlike black-and-white MRIs, which appealed to popular media, thus popularising the images and creating social demand for them.³⁴ According to Dumit, 'brain images travel' beyond the clinic (or, more often, the courtroom-as-clinic imagined by Raine), and 'their persuasive power and objective authority over human nature is used in many arenas – science journalism, movies, criminality, mental illness, patient activism, doctor's offices.'³⁵ By the 1990s, popular magazines such as *Newsweek* were not only showing us the precise locations of 'Depression' and 'Mental Retardation' in multi-coloured PET scans, but also suggesting that we, too, could decode the images (Figure 13.1).³⁶ Guidance offered in the form of captions – which set the abnormal image against a comparative 'normal' one – rendered the PET scans meaningful to a reader.

While the popular press's presentation of PET images made them appear to serve a diagnostic function, the images were actually collected in order to study people who had already been diagnosed. Unlike MRIs, used to locate a tumour and diagnose cancer, images of brain activity are most useful for study rather than diagnosis of mental illness. While a group of images, chosen to maximise the illustration of visible difference, might at best indicate correlation, they say nothing of causation. Specific images, however, are chosen for publication in order to maximise the illustration of visible difference, and the accompanying texts concretise the 'meaning' of the images.

The imagined relation between the visualised brain and the 'mind' has important implications for how we understand and narrate mental disorder. In the last several decades, anti-stigmatisation movements for mental illness have encouraged people to think of mental illness as a biological disease, a 'disease just like any other'. Such an approach, bolstered by the popularity of brain imaging, has complex (and often unintended) political ramifications.³⁷ It is consonant with and bolstered by the popularity of brain imaging. Popular images that localise brain function allow patients and clinicians alike to imagine abnormal psychological function and its behavioural consequences as a discrete 'disease' entity or invader, like a virus or bacterium, which exists in the brain, but is not integral to the mind-self of the person afflicted.³⁸ Yet the ways in which brain images circulate, and the explanatory narratives that accompany them, do not always normalise and democratise the experience of psychological abnormality, but instead often reinscribe already existing racial assumptions about the natural relationship between non-white races, mental illness and criminality, while reinforcing a conception of white pathology as surprising, tragic and in need of scientific investigation and personal treatment. Use and circulation of medical

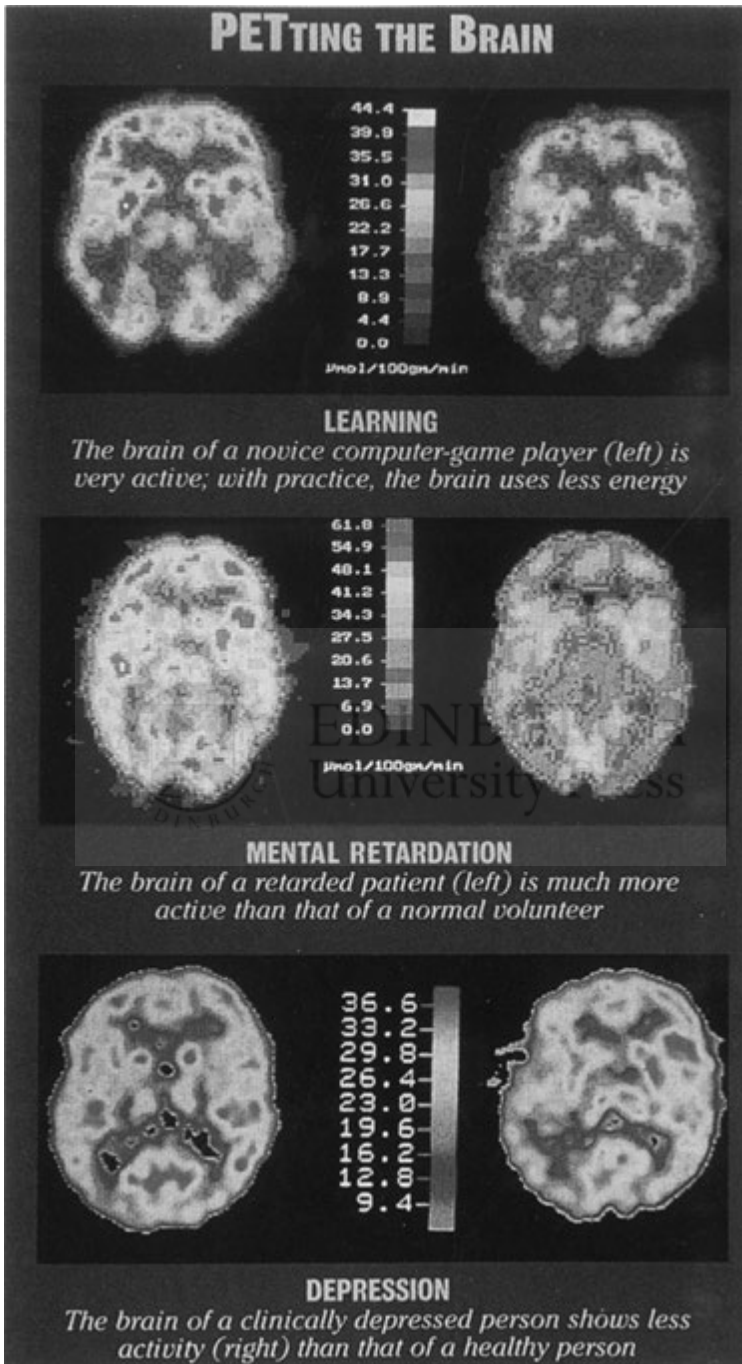


Figure 13.1 Comparative PET scans with accompanying labels indicating ‘type’. First published in *Newsweek* as ‘PETting the Brain’ in the article ‘Mapping the Brain’ (19 April 1992). The first and second images are © 1992 R. J. Haier and M. S. Buchsbaum; the third is © 1992 M. S. Buchsbaum.

images – far from their imagined ideal as race-neutral diagnostic tools – help to perpetuate the very forms of image-based racialisation that their ‘unbiased’ machine-mediation was thought to overcome.

White Abnormal, Black (Ab)normal: Reading Raine through Ellison

The Anatomy of Violence begins with a doubly surprising personal anecdote. While asleep on vacation in Turkey, Raine awoke to an intruder in his room. Against all of his criminological training, he writes, ‘in little more than a second, I had instinctively grabbed the intruder.’³⁹ Although the intruder escaped without being seen by Raine, Raine was given the opportunity to identify him against another suspect and see him punished. The anecdote first surprises because the empirically suspect personal story, with its appeals to identity-based empathy from the reader, is one of the most pervasive rhetorical techniques in a text otherwise invested in asserting the empirical validity of neurocriminology. Secondly, the story seems to contradict the very point Raine most wants to emphasise in his introduction: *his* criminology has left behind all vestiges of racism. The opening story Raine tells is one that validates rather than rejects the racialised visual codes of early criminology. Faced with choosing between a rougher looking man and a ‘good looking man’, Raine decides that his attacker was the one who ‘had the classic mesomorph physique that early criminologists believed typified criminals’: that is, the stocky and muscular man. While indeed, ‘stocky and muscular’ and ‘good looking’ are not racial categories (and Raine is careful to point out that both men are of the same race), Raine affirms the validity of visual knowledge of types, specifically criminal types. When the man is quickly convicted (without legal representation), for Raine, ‘justice is sweet.’

Raine’s book, which promises to show ‘how biological research can contribute to our understanding of violence, but also how it may lead to benign and acceptable ways of reducing suffering’, thus from its very first pages raises the spectre of race.⁴⁰ Just as Raine avoids directly using the language of race while simultaneously using racialised imagery, the residues of racialisation throughout the book exceed his careful claims to avoid the biological determinism that has historically characterised race science. Raine at times makes clear assertions about the complex and undetermined relations between biology and social functioning: ‘biology is not destiny’; social factors matter; ‘crime, after all, is a social construction.’⁴¹ Yet, he points out the social basis of definitions of crime in order to dismiss the efficacy of the social study of criminality. In contrast to most contemporary critics of the prison industrial complex, who understand the rapid increase in prison populations throughout the 1970s and 1980s largely in response to economic factors, including the birth of neoliberalism,⁴² Raine places the blame on the ‘the heavy emphasis on an exclusively social approach to crime and violence throughout the last century’.⁴³ What is needed to usher in a new era of rehabilitation and criminological therapeutics is to ‘unlock the causes of crime with a set of biosocial keys forged from a new generation of integrative interdisciplinary

research combined with a public health perspective'.⁴⁴ For Raine, the problem is that the social is always biological.

In *Invisible Man*, Ellison explored the racial implications of the imagined relationship between biology and criminality in therapeutic contexts, and attention to his narrative helps uncover how Raine not only replicates an old narrative about race, visibility, neurology and crime, but also further encodes the narrative in his presentation of MIs. Indeed, his story would come as no surprise to Ellison, who spent a significant portion of his life troubling relationships between visibility and knowledge in order to account for the cultural 'schizophrenia' of the US, a diagnostic metaphor for the ways in which black people experienced the promise of equality under the sign of democracy while constantly being denied its full expression.⁴⁵ Ellison's use of the psychiatric category 'schizophrenia' turned out to be particularly prescient because, as Metzler has shown, over the next several decades, through the tumultuous years of the civil rights movement, some psychiatrists began to associate Black Power rhetoric with insanity, and the symptomatology of 'protest psychosis' entered the diagnostic rhetoric surrounding schizophrenia.⁴⁶

In an episode that takes place in a factory-owned hospital, Ellison places the cultural conflation of blackness, criminality and generalised insanity in the context of emergent biopsychiatry and psychosurgery. Coming to after being knocked unconscious in an explosion, the narrator hears the memory of his grandmother's voice singing to him, punctuated by the voices of two men. As he awakens, he begins to realise that these men are debating the best way to 'treat' him for his injuries. They suggest both lobotomy and castration, a pairing that hints at the history of race-based medical experimentation and criminal punishments in the US that were imposed to affect the reproductive capacities of black people and often justified by the assumption of an intellectual inferiority. The doctors in the chapter finally decide on a new, experimental, non-surgical lobotomy: electroshock therapy.

Knowledge of the racial history of medicine invoked by Ellison complicates the dialogue between the white doctors in this scene, which parodies the racist presumptions of psychiatric discourse in the first half of the twentieth century. The conversation begins with an ironic portrayal of racist presumptions about the statistical utility of a black person for knowledge about human psychology more generally. As one doctor says:

I believe it a mistake to assume that solutions – cures, that is – apply in, uh . . . more primitive instances, are, uh . . . equally effective when more advanced conditions are in question. Suppose it were a New Englander with a Harvard background.⁴⁷

Set against the possibility of a 'more advanced' instance – assumed to be both white and rich, a New Englander with a Harvard background – the narrator is described as 'primitive'. Invocation of the word 'primitive' makes it clear that this is not a rejection of psychological universalism, but rather of the narrator's capacity to be a statistically valid 'human'. Blackness appears as a sign of inherent psychological abnormality, a psychological 'case' that, according to one of the doctors, 'has been developing some

three hundred years';⁴⁸ since the birth of the transatlantic slave trade, abnormality has been the black norm. Meanwhile, whiteness indexes not only the potential for normality, but also the potential for significant and meaningful abnormality. Without being examined by the doctors, the narrator's psychological pathology – his normal abnormality – is merely assumed on the basis of his 'primitive' race. Furthermore, once he is treated, the doctor says, 'the result is as complete a change of personality as you'll find in your famous fairy-tale cases of criminals transformed into amiable fellows after all that bloody business of brain operation.'⁴⁹ His single point of comparison for his black patient is a criminal, thus conflating black psychology – already assumed to be abnormal – with criminal behaviour.

In order to be treated, the invisible man is fixed 'beneath a slab of glass', as though he were a specimen on a slide. Thus framed, the invisible man also resembles the photographic portraits that pervade the novel and act as triggers for memory and psychological transformation. As both Sara Blair and Lena M. Hill have shown, documentary photography and portraiture serve as central tropes of the novel, and Ellison's engagement with them is one that evinces scepticism about their capacity to index interior 'truth'.⁵⁰ Instead of presenting a documentary photograph, however, the doctors stage the invisible man as transformed into evidence and made visible to the doctors in the racialised production of the black-man-as-image.

In contrast to the doctors, Ellison privileges the narrator's complex interiority through linguistic description of the experience of being imaged, and the scene refuses the corroboration of the produced image and imagined idea of his black brain: as primitive and *readily available to visualisation*. Indeed, his slippery, ironic, *non-transparent* answers to straightforward questions about his name and identity – which he responds to with references to black folklore characters such as Brer Rabbit or rhetorical questions used to 'play the dozens' – refuse the possibility of transparency demanded of visual images, requiring both cultural context and interpretation to understand.⁵¹ In doing so, not only he challenges the assumption of transparency assigned to medical and machine-made images, but moreover challenges its desirability. Imaging gains meaning in social contexts and carries with it a social history of racial assumptions that is simultaneously difficult to see and difficult to escape. This remains especially true in a criminological context, and helps us to unpack the unexpected and hidden ways in which race emerges in Raine's *Anatomy of Violence*.

Likeness: Whiteness and the Image of Empathy

Ellison's emphasis on the ways in which language guides epistemological assumptions – even seemingly 'objective' scientific ones – offers a guide for unpacking some of the difficulties encoded in Raine's text. Despite Raine's scientific care in reminding readers that many of the connections he draws from 'promising' research are speculative, the narrative of neurocriminology unfolds as one that establishes concrete rather than suppositional relations between brain function and violent criminality. Indeed, the meaning of the empirical evidence Raine presents ends up residing somewhere between his careful

warnings and the speculations and personal anecdotes he deploys. It is precisely those personal anecdotes and their appeals to readerly empathy that structure the embedded racial narrative of *Anatomy*.

Central to Raine's *The Anatomy of Violence*, literally, is an inset of brain images of violent criminals, collected by Raine. A typological label ('Normal', 'Multiple Murderer', 'Murderer') accompanies each image, except one. Closer inspection of the caption reveals that image to be of the author's own brain (Figure 13.2).

The first chapter, 'Basic Instincts: How Violence Evolved', offers an autobiographical account of Raine's entry into neurocriminology through his discovery of Richard Dawkins, whose *The Selfish Gene* (1976) was foundational to the fields of sociobiology and evolutionary psychology. Raine then extrapolates his sociobiological perspective from outdated, controversial studies, such as Napoleon A. Chagnon's *Yanomamö: The Fierce People* (1968). Raine's dependence on the Yanomami example, and his frequent reference to them as 'primitive', sets the stage for his larger argument by using research into brain and genetic functioning to corroborate the ethnographic narratives of primitivist anthropologies, insinuating that non-Western cultures may have evolved to be naturally more violent than Western ones. Although Raine admits that sociobiology may be 'an untestable theory',⁵² and presents his main goal as laying out the contemporary

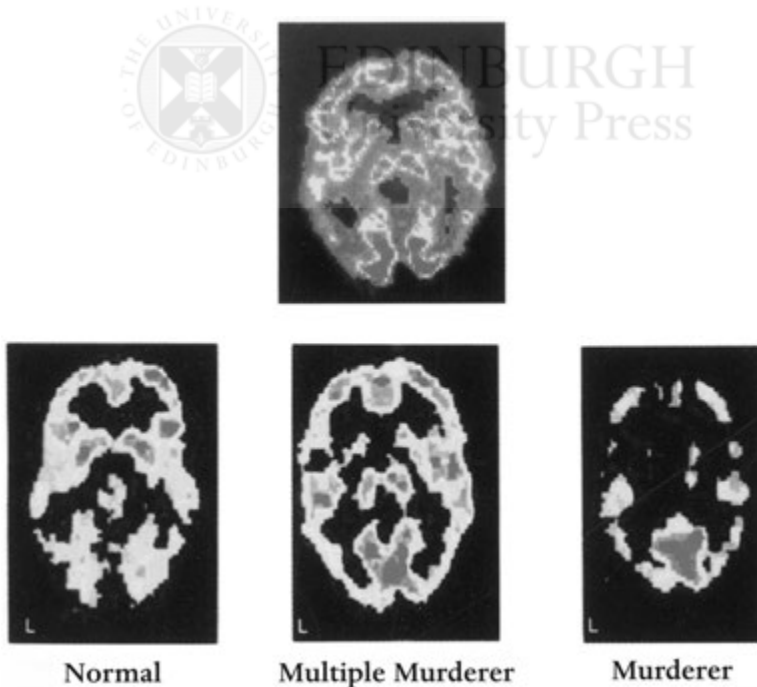


Figure 13.2 Figure 3.3 from *The Anatomy of Violence: The Biological Roots of Crime* by Adrian Raine, copyright © 2013 by Adrian Raine. Used by permission of Pantheon Books, an imprint of the Knopf Doubleday Publishing Group, a division of Penguin Random House LLC. All rights reserved.

field of research about the relations between biology and crime, it quickly emerges that his main impetus is, in fact, to create an explanatory narrative about that research, a narrative grounded in the speculations of a sociobiological perspective.

This narrative has resonances with Ellison's much older story of race psychology. For example, in the chapter 'Cold-Blooded Killers', Raine compares the stories of 'Raj', a Mauritian male with the low resting heart rate of a 'thug', with Theodore 'Ted' Kaczynski, the white, domestic US terrorist known as the Unabomber.⁵³ In Raine's account, Raj is just one among many Mauritian 'kids' whose naturally low heart rate, combined with lack of stimulation in early life, leads to criminality. By contrast, Kaczynski's 'campaign of public terror', which affected a largely white US community, makes him a particularly spectacular example of the urgent need for therapeutics: for testing, marking and intervening in childhood development based on biomarkers.

In the chapter 'Murderous Minds', Raine magnifies the urgency of attending to therapeutic possibilities by arguing that even people with backgrounds similar to his own – such as Randy Kraft, who was also 'the son of respectable, hardworking parents', who 'grew up in a middle class, conservative area'⁵⁴ – could become serial killers. He goes on to interpolate readers into a shared subject position, describing the white Randy as, potentially, 'like you or I'.⁵⁵ He then sets Kraft against the counter-example of a person of colour, Antonio Bustamante, who serves as 'Raj' to Kraft's 'Kaczynski'. Mexican-American Bustamante serves as an example of 'the vast majority of killers', a formerly 'law-abiding immigrant' who went on to become a career criminal and 'a messy and disorganized killer'.⁵⁶ He is the *normal* abnormal – 'less memorable' and 'common-variety' – while the white Kraft is particularly curious and spectacular, the exceptional abnormal.

Three of the nine inset image sets are dedicated to illustrating the Kraft/Bustamante example that most explicitly links Raine's personal history to one of his subjects of study. According to Raine, PET shows that one-time murderers, the 'common-variety' exemplified in the 'Murderer' image of Bustamante's brain, tend to have reduced 'activation in the prefrontal cortex', indicating increased 'raw emotions', 'risk-taking' and 'impulsivity', as well as 'poor social judgment' and 'loss of intellectual flexibility'.⁵⁷ By contrast, in the image of Randy Kraft's brain, 'labelled "Multiple Murderer"', 'that part of the brain is lit up like a Christmas tree'.⁵⁸ Kraft's brain is exceptional not only against Bustamante's 'normal abnormal', but also against the normal control. In reference to the figure, labelled 3.3 in *Anatomy*, Raine writes:

You can see more activation in the middle – the thalamus – as well as excellent activation in of the occipital cortex . . . and the temporal cortex You don't see as much activation in either the normal control or the one-off killer.

But we did see someone else who had a brain scan very much like Randy's. That scan is shown above Randy's in Figure 3.3. . . . It's not a perfect match but it does seem more similar to Randy's than the others. Note the plentiful prefrontal activation at the top, the bilateral thalamic activation . . . , and the temporal lobe activation on the sides.

What's interesting about this brain scan is that it's my brain scan.⁵⁹

In Raine's reading of the specific images, he presents his and Kraft's brains as both exceptional and exceptionally similar, proven through the localisable activities of their brains. Directly addressing the reader, Raine again notes his biographical similarity to Kraft: 'As you noticed earlier, it's hard for me not to see parallels between Randy's life and mine.'⁶⁰ But, he asks, 'Am I a serial killer?'⁶¹ The obvious answer is 'No', which indicates that 'Clearly there are "normal" people like myself – and yourself – with "abnormal" brain scans.' Already, having earlier drawn the reader into his circle of likeness, of white middle-class childhoods, 'normal' and 'abnormal' here resonate with their intended meaning, a meaning denied to Bustamante and other people of colour, whether criminals or not.

Ellison used cultural codes and references – linguistic play and irony – to reveal his black narrator's complex interiority and refuse the simple, typological visualisation of his brain as always-already, naturally, pathological and criminal. Reading the novel alongside Raine's account allows us to attune ourselves to the ways in which the supposed neutrality of images can code over racial assumptions that still inhere in their interpretation, and encourages us to pay attention to just who fits readily into the typology he presents: who is worthy of specific attention and who is just a case? Who has a separable self, and whose abnormality is positioned as 'normal'?

Conclusion

Today, courts depend heavily on brain imaging techniques to determine criminal culpability.⁶³ The assumption that the images' visual markers translate readily into behavioural causes invokes two legal possibilities: one in which the criminal suspect would not be responsible for his/her actions due to the biological invader of brain difference, and the other in which the diseased brain is incurable and its host in need of permanent incarceration. In Raine's imagining, brain imaging will allow for a 'disease model' of criminality that will encourage therapeutics rather than punishment. Pushing the possibilities of criminological brain imaging to their speculative limits, the final two chapters of Raine's book detail an imagined future in which predictive brain imaging will allow early intervention and treatment, preventing crime and relieving the suffering of potential criminals and potential victims alike.

Yet, our analysis of Raine suggests that his book crosses the fine line between speculation and established fact, between predictive potentials and contemporary diagnostic limits. In his account, brain imaging is giving us not only 'important clues as to which brain regions – when dysfunctional – could give rise to violence' but also speculations about brain localisation that will give way to reality.⁶³ Raine's insistence about the future of neurocriminology, one that assumes the power of brain imaging to locate the biology of violence, positions himself – a leader in the field – as a social saviour, poised to intercede against crime before it occurs, based on the guarantee of the future diagnostic capacity of neurocriminology grounded in machinic intervention.

In fact, the future Raine imagines looks more and more like the past evoked by Ellison, with men of colour indicted as crazy and criminal based on biology before

they have even had a chance to act. The historical conflation of race, insanity and criminality that pervaded Ellison's lifetime does not disappear in the 'post-racial' era, nor in Raine's work, though it does lose the overt language of racial typology. Instead, this conflation appears in newly coded ways, through narratives about images and their medico-scientific meanings, ways that perpetuate a submerged history of the image of race.

Further Reading

- Jim Downs, *Sick from Freedom: African-American Illness and Suffering during the Civil War and Reconstruction* (Oxford: Oxford University Press, 2015).
- Sander Gilman, *Difference and Pathology: Stereotypes of Sexuality, Race, and Madness* (Ithaca, NY: Cornell University Press, 1995).
- Avery Gordon, *Ghostly Matters: Haunting and the Sociological Imagination* (Minneapolis: University of Minnesota Press, 2008).
- Bettyann Holtzmann Kevles, *Naked to the Bone: Medical Imaging in the Twentieth Century* (New York: Basic Books, 1998).
- Khalil Gibran Muhammed, *The Condemnation of Blackness: Race, Crime, and the Making of Modern Urban America* (Cambridge, MA: Harvard University Press, 2011).
- Britt Rusert, 'The Science of Freedom: Counter-Archives of Racial Science on the Antebellum Stage', *African American Review* 45.3 (2012), pp. 291–308.
- Shawn Michelle Smith, *Photography on the Color Line: W. E. B. Du Bois, Race, and Visual Culture* (Durham, NC: Duke University Press, 2004).
- Catherine A. Stewart, 'Crazy for this Democracy: Postwar Psychoanalysis, African American Blues Narratives, and the Lafargue Clinic', *American Quarterly* 65.2 (2013), pp. 371–95.
- Richard Wright, *Native Son* (New York: Harper Perennial, 2014 [1940]).

Notes

1. Adrian Raine, *The Anatomy of Violence: The Biological Roots of Crime* (New York: Vintage Books, 2013), p. 8.
2. Adrian Raine, 'The Criminal Mind', *Wall Street Journal* (26 April 2013) <<http://online.wsj.com/news/articles/SB10001424127887323335404578444682892520530>> (accessed 10 August 2015).
3. Raine, 'The Criminal Mind'.
4. Raine, *The Anatomy of Violence*, p. 13.
5. *Ibid.*, p. 13.
6. The implied humour of Raine's point resides in the culturally pervasive idea of whiteness – under which both groups now fall – as unraced. However, the definition of whiteness in the US is not solely a scientific phenomenon, but instead is caught up in related legal distinctions; racial difference was not erased, but instead, the net of whiteness as a legal and property value was widened. See Cheryl Harris, 'Whiteness as Property', *Harvard Law Review* 106.8 (1993); Theodore W. Allen, *Class Struggle and the Origin of Racial Slavery: The Invention of the White Race* (Hoboken, NJ: Hoboken Education Project, 1975); and

- David Roediger, *The Wages of Whiteness: Race and the Making of the American Working Class* (New York: Verso, 2007).
7. See H. Roy Kaplan, *The Myth of Post-Racial America: Searching for Equality in the Age of Materialism* (Lanham: Rowan & Littlefield, 2011); Eduardo Bonilla-Silva, *Racism without Racists: Color-Blind Racism and the Persistence of Racial Inequality in America* (New York: Rowan & Littlefield, 2009); and Tyrone Forman, 'Post-Racialism: Its Meaning and Social Consequences', in Charles Gallagher and C. Lippard (eds), *Race and Racism in the United States* (Westport, CT: Greenwood Press, 2014).
 8. Quoted in Susan Young Rojahn, 'Why Obama's Brain-Mapping Project Matters', *MIT Technology Review* (8 April 2013) <<http://www.technologyreview.com/news/513011/why-obamas-brain-mapping-project-matters>> (accessed 10 August 2015).
 9. Helen Shen, 'US Brain Project Puts Focus on Ethics', *Nature* (14 August 2013), pp. 261–2.
 10. See Jonathan M. Metzler, *The Protest Psychosis: How Schizophrenia Became a Black Disease* (Boston: Beacon Press, 2010).
 11. Kelly A. Joyce, *Magnetic Appeal: MRI and the Myth of Transparency* (Cornell, NY: Cornell University Press, 2008), pp. 60–1.
 12. José van Dijck, *The Transparent Body: A Cultural Analysis of Medical Imaging* (Seattle: University of Washington Press, 2005), p. 4.
 13. See Joyce, *Magnetic Appeal*, p. 11.
 14. See Lundy Braun, *Breathing Race into the Machine: The Surprising Career of the Spirometer from Plantation to Genetics* (Minneapolis: University of Minnesota Press, 2013).
 15. Erica Fretwell, 'Ultrasonic Youth', MIT: Media in Transition 8, May 2013. Conference Paper.
 16. Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception* (New York: Vintage, 1994), p. 195.
 17. See John Tagg, *The Burden of Representation: Essays on Photographies and Histories* (Minneapolis: University of Minnesota Press, 1993).
 18. See Alan Trachtenberg, *Reading American Photograph: Images as History, Mathew Brody to Walker Evans* (New York: Hill & Wang, 1990).
 19. Tagg, *The Burden of Representation*, p. 81.
 20. Sara Blair, 'Ralph Ellison, Photographer', *Raritan* 24.4 (2005), p. 19.
 21. *Ibid.*, pp. 19, 22.
 22. See Alan Trachtenberg, *Reading American Photographs*; and Jacqueline Goldsby, *A Spectacular Secret: Lynching in American Life and Literature* (Chicago: University of Chicago Press, 2006).
 23. See Miriam Thaggert, *Images of Black Modernism: Verbal and Visual Strategies of the Harlem Renaissance* (Amherst: University of Massachusetts Press, 2010); and Badia Sahar Ahad, *Freud Upside Down: African American Literature and Psychoanalytic Culture* (Chicago: University of Illinois Press, 2010).
 24. See Tagg, *The Burden of Representation*; Trachtenberg, *Reading American Photographs*; and Blair, 'Ralph Ellison, Photographer'.
 25. See Lisa Carwright, *Screening the Body: Tracing Medicine's Visual Culture* (Minneapolis: University of Minnesota Press, 1995); van Dijck, *The Transparent Body*; and Joseph Dumit, *Picturing Personhood: Brain Scans and Biomedical Identity* (Princeton: Princeton University Press, 2004).

26. See Joyce, *Magnetic Appeal*; and Dumit, *Picturing Personhood*.
27. Frantz Fanon, *Black Skin, White Masks* (New York: Grove Press, 2008 [1952]), p. 11.
28. See, for example, Nicholas Wade, *A Troublesome Inheritance: Genes, Race, and Human History* (New York: Penguin Press, 2014).
29. Dumit, *Picturing Personhood*, p. 24.
30. *Ibid.*, p. 23.
31. Joyce, *Magnetic Appeal*, p. 25.
32. Dumit, *Picturing Personhood*, p. 2.
33. Joyce, *Magnetic Appeal*, pp. 38–41.
34. Van Dijck, pp. 11–12.
35. Dumit, *Picturing Personhood*, pp. 140–1.
36. *Ibid.*, pp. 6, 140.
37. See Ethan Watters, *Crazy Like Us: The Globalization of the American Psyche* (Free Press, 2010).
38. Jonathan MetzL also treats this issue in relation to gender, especially with regard to the rise of psychopharmaceuticals, in *Prozac on the Couch: Prescribing Gender in the Era of Wonder Drugs* (Durham, NC: Duke University Press, 2003).
39. Raine, *The Anatomy of Violence*, p. 3.
40. *Ibid.*, p. 10.
41. *Ibid.*, p. 13.
42. See, for example, Ruth Wilson Gilmore, *Golden Gulag: Prisons, Surplus, Crisis, and Opposition in Globalizing California* (Berkeley: University of California Press, 2007).
43. Raine, *The Anatomy of Violence*, p. 9.
44. *Ibid.*, p. 10.
45. See Ralph Ellison, ‘Beating that Boy’, *Shadow and Act* (New York: Vintage International, 1995 [1964]), pp. 95–102. See also Shelly Eversley, ‘The Lunatic’s Fancy and the Work of Art’, *American Literary History* 13.3 (2001), pp. 445–68.
46. MetzL, *The Protest Psychosis*, p. 100.
47. Ralph Ellison, *Invisible Man* (New York: Vintage International, [1952] 1995), p. 236.
48. *Ibid.*, p. 237.
49. *Ibid.*, p. 236.
50. See Blair, ‘Ralph Ellison, Photographer’; and Lena M. Hill, ‘The Visual Art of *Invisible Man*: Ellison’s Portrait of Blackness’, *American Literature* 81.4 (2009), pp. 775–803.
51. Ellison, *Invisible Man*, pp. 239, 241.
52. Raine, *The Anatomy of Violence*, p. 36.
53. *Ibid.*, p. 107.
54. *Ibid.*, p. 61.
55. *Ibid.*, p. 62.
56. *Ibid.*, p. 64.
57. *Ibid.*, pp. 67–8.
58. *Ibid.*, p. 72.

59. Ibid., p. 75.
60. Ibid.
61. Ibid.
62. See Dumit, *Picturing Personhood*, as well as 'Chapter 10: The Brain on Trial' in Raine, *The Anatomy of Violence*.
63. Ibid.



EDINBURGH
University Press