

# The Neural Implantation: Cognitive Difference and Contemporary Culture

S Meeks

PhD 2020

# The Neural Implantation: Cognitive Difference and Contemporary Culture

Spencer Meeks

A thesis submitted in partial fulfilment of the requirements of the Manchester  
Metropolitan University for the degree of Doctor of Philosophy

Department of English

Manchester Metropolitan University

2020

## Table of Contents

|  |     |
|--|-----|
| Acknowledgements.....  | 4   |
| Abstract.....  | 5   |
| Context: The Neuro-turn.....   | 6   |
| Introduction: The Neural Implantation.....                                     | 14  |
| Theorising the Neuro-Turn .....  | 14  |
| Neurochemical Selves .....   | 17  |
| Brainhood and History .....  | 21  |
| The Plastic Subject .....  | 26  |
| The Neuronovel .....   | 37  |
| Neuromodels and Neuronovels – Emerging Tensions?.....                          | 42  |
| Foucault’s Bodies and Subjects.....  | 49  |
| The Perverse Implantation.....   | 54  |
| The Neural Implantation.....   | 57  |
| Neuro-Crime Fiction.....   | 65  |
| Chapter Summaries.....   | 74  |
| Chapter One: Pill-popping Narratives of Cognitive Enhancement .....            | 80  |
| Fictions of Enhancement .....  | 85  |
| Limitless .....  | 93  |
| Nexus .....  | 126 |
| Chapter Two: The Shooter and the Hacker: Autism, Courtrooms, and Justice ..... | 149 |
| The Autistic Hacker .....  | 153 |
| The Autistic Shooter.....  | 159 |
| Autism (Re-)represented .....  | 167 |
| House Rules.....   | 175 |
| Autistic Retribution; Autistic Justice - Lisbeth Salander .....                | 194 |
| Autistic Retribution; Autistic Justice: <i>The Code</i> .....                  | 206 |
| Chapter Three: Sleuthing and Suspecting the Dementia Subject.....              | 222 |
| Figures and Fear.....  | 230 |
| Searching for the Plot .....   | 238 |
| Notes and Journals.....  | 244 |
| Elastic Bands or Pleistocene?.....   | 258 |
| Maud and Jennifer: No Sense of an Ending? .....                                | 265 |
| Cut to Black? .....  | 274 |
| Conclusion: Neural Implantations Today and Tomorrow.....                       | 285 |
| Bibliography .....   | 301 |

## Acknowledgements

Thank you to the Manchester Metropolitan for awarding me the Vice Chancellor Scholarship without which this research would not have been possible. Thanks to Dr Lucy Burke, my Director of Studies and Dr Paul Wake for supervising me during this lengthy process.

There are too many other people who deserve thanks, they know who they are and I am grateful. But here I just want to thank my brilliant mum, Dawn Docherty.

## Abstract

This thesis seeks to explore the effects of the neuro-turn, which is the turn away from predominately psychological paradigms towards neuroscientific models and explanations of the self. Demarcating the beginning of this turn as the 1990s, dubbed the 'decade of the brain', the thesis is particularly concerned with exploring the effects of the neuro-turn on the people whose identity, subjectivity, and personhood come to be built or formed around these novel neuroscientific ways of understanding or measuring brains and cognition. In particular, the thesis considers people who are categorised, diagnosed, or believed to have cognitive difference, particularly salient in this neuro-turn in regards to the myriad brain diseases, disorders, syndromes, and conditions present today. Underpinned by a Foucauldian theoretical framework, particularly the description of the nineteenth century's 'perverse implantation', this thesis develops the concept of the 'neural implantation' to describe the effects of this biopolitical drive to classify cognitive difference. It is particularly interested in how the generic properties of crime fiction can elucidate both the biopolitics of the neural implantation, as well as how these texts can be sites through which to resist some of the more problematic effects of the medicalisation and politicisation of cognitive difference.

Beginning with the cultural fascination with cognitive enhancement, it seeks to understand the kinds of subjectivities ideas of enhancement produce through close readings of Neil Berger's film *Limitless* and Ramez Naam's novel *Nexus*. It argues that the recent shift away from neoliberal to populist forms of politics is reflected in these two texts, and show how the neural implantation they imagine encapsulates this. It continues with an exploration of autism in society and culture, arguing that implantations of autism can be divided into the polar figurations of the 'autistic shooter' and the 'autistic hacker'. It looks at Jodi Picoult's novel *House Rules* as indicative of the 'shooter', describing the reading of the narrative as a 'feel bad' experience, before shifting to representations of the hacker, through readings of the television series *The Code* and Stieg Larsson's *Millennium* novel series. The thesis concludes with a discussion of dementia, arguing that the contemporary model seeks only to medically pathologise and culturally demonise people living with dementia. To combat this, the thesis adopts a psychoanalytic reading of Emma Healey's *Elizabeth is Missing* and Alice LaPlante's *Turn of Mind*, to show how society can begin to 'read' dementia differently, and moreover begin to learn what dementia and other cognitive differences can teach us about the limitations of the normative paradigm.

## Context: The Neuro-turn

In a 2017 BBC documentary titled 'The Truth About...Stress', presenter Fiona Phillips sets out to examine the effectiveness of mindfulness, a meditative practice designed to focus the self in the present with the aim, for some, of reducing stress. She remains sceptical of its health benefits until neuroscientist Elena Antonova explains the differences in brain scan images of the same person both when 'mind-wandering' and when practising mindfulness.

[Phillips:] It's all very well being told mindfulness works but I'm still a bit sceptical. I've come to the Institute of Psychiatry, Psychology, and Neuroscience at King's College London to find out what the science is behind it. [...]

[Antonova, pointing to a brain image:] This area... are the areas that we call self-referencing – it's the me-me-me experience. [...]

[Phillips:] That's incredible! The difference is stark! We've just got so much activity going on in the mind wandering brain, and yet barely any in the mindfulness brain. What effect would that have? Having less reaction in the frontal lobe?

[Antonova:] The experience associated with this brain state is that sense of openness and clarity. [...]

[Phillips:] I would love to have that brain, the mindfulness one. [...] Well, I have to say, I was a bit cynical about mindfulness at the beginning of the day, and now I am definitely a convert. I've seen the science!<sup>1</sup>

Having previously been told 'mindfulness works' by a group of high school children she describes herself as sceptical; however, after having been shown differences in brain scan images she describes herself as a 'convert'. I begin with this encounter because it encapsulates much about the ways in which scientific ideas about the brain are assimilated and incorporated into popular cultural discourses in what is

---

<sup>1</sup> Fiona Phillips and Elena Antonova, *The Truth About... Stress*, BBC, 4 May 2017, online video recording, BBC iPlayer <<https://www.bbc.co.uk/iplayer/episode/p04yy2n4/the-truth-about-11-stress>> [accessed 23 October 2017].

referred to as the neuroscientific, neurological, or neuro-turn.<sup>2</sup> Further, it highlights the nature of anecdote versus evidence, and reveals the role of the scan as the apparatus of truth, and vehicle of evidence and facticity. In other words, the very mode through which the evidence of mindfulness is conveyed is bound up with the technology of the neuro-turn itself. Phillips' reaction is typical of the way in which material models of the brain are emerging as uncontested explanations for a vast range of human behaviour, action, and health. It is true that this Damascene moment is a stock trope of this kind of popular scientific documentary in which the presenter meets with apparently incontrovertible evidence and has a correlative transformation in understanding. However, performative tropes such as this also reflect the cultural interest in the brain as the final frontier of human life, whereby previously psychologised states of 'openness and clarity' come to result from 'less reaction in the frontal lobe'. The brain, as this thesis explores, is a promissory organ of potentiality; the locus of our capacity to think our way out of the kind of diseases, resource scarcity, and environmental crises that threaten our future, as well as a means to meditate away the stress these crises produce.<sup>3</sup> Phillips' excitement in seeing the difference between the brain scans is similarly reflective of the enthusiastic ways such neuro-models are assimilated in culture and society.

---

<sup>2</sup> Broadly speaking, the neuro-turn reflects the cultural and social turn towards neuroscientific models and explanations regarding the self; the shift to understand the self through the workings of the brain rather than the depths of the psychological mind. It is also a 'turn' in the academic sense, demarcating an epistemological shift in the art and humanities towards research underpinned or informed by the explanatory power of neuroscience. This is reflected in emerging disciplines such as neurolaw or neurophilosophy.

<sup>3</sup> Melinda Cooper discusses this notion in *Life as Surplus: Biotechnology and Capitalism in the Neoliberal Era* (Seattle: University of Washington Press, 2008).

However, enthusiasm often masks the hollowness it represents (after all, Phillips has only learned that meditation might relieve stress), or more seriously conceals or elides the ethical concerns arising from this turn towards neuroscientific models and explanations. Indeed, Phillips' claim that she 'would love to have that brain, the mindfulness one' contains the strange idea of a brain that can be possessed, reflecting the contemporary fascination with categorising brains and recognising brain difference, and highlighting a key effect of the neuroscientific turn in that some brain states or cognitive differences become more or less desirable. This thesis explores the implications of the practices of categorisation that characterise the neuro-turn, particularly in reference to the ways in which popular representations of brain diseases, disorders, syndromes, and conditions are being re-considered through neuro-material models and explanations. Phillips wants to 'have that brain' because the mindfulness brain represents a more desirable disposition, an improvement upon her usual emotional and cognitive state. However, wanting to *have* a different emotional or cognitive state is not the same as *being* cognitively different.<sup>4</sup>

Phillips' comment may simply be a convention of this form of popular documentary, but it arguably reveals something deeper. Today, the speculation, recognition, and diagnosis of brain and cognitive difference has become a medical and cultural phenomenon underwritten by powerful biopolitical imperatives, to the extent that brain function and ability is being identified, sorted, and hierarchised.

---

<sup>4</sup> Throughout this thesis I refer mostly to brain and cognitive difference to refer to a wide range of differences in behaviours, personalities, and health, which are usually symptomatically grouped into a diagnostic category such as autism. However, these are used largely interchangeably with atypicality and neural difference.



Brain scanning for the effectiveness of mindfulness is harmless, but the schism between anecdote and material evidence is reflective of the increasing purchase of medicine, neuroscience, and technology in proving value and categorising difference. This turn to neuroscience in a primetime BBC documentary, however, inadvertently highlights that the narratives we turn towards to explain who and how we are, are increasingly found in the materiality of the brain rather than traditional psychological narratives and models of self-formation. This reflects the broader shift from the psychological mind to the materiality of the brain occurring because of the turn towards neuroscientific models. Psychiatrist Michael H. Stone captures this change in this pithy summation: ‘as the [twentieth] century draws to a close, the transition from focus on the individual psychology to the chemistry and physics of the soul is in full swing’.<sup>5</sup>

This research looks at the cultural work particular categories of brain difference that are grounded in neuroscience and molecular medicine effect through a close analysis of contemporary news media, literature, television, and film. I problematise the presumption that science is reflective of a definite objective truth because the thesis takes as its starting point the claim that medicine and science are equally enmeshed in subjective and cultural narratives; neuroscience’s truth claims, as this thesis argues, should be examined alongside the material culture within which they exist. I will argue that popular narrative discourses such as novels, film, and news media encapsulate the ideological and ethical tensions that emerge in the encounter between residual psychosocial and emergent neuroscientific articulations of identity,

---

<sup>5</sup> Michael H. Stone, *Healing the Mind* (New York: W. W. Norton & Company, 1997), p.360.

subjectivity and personhood. I focus particularly on the crime genre because its historical development is entwined with the biopolitical compact between medicine, technology, and institutional establishments of the law and politics that, I argue, are crucial in creating and maintaining categories of brain difference. For instance, in detailing that she is at King's College London, Phillips draws attention to the institutional context in which Antonova's research takes place in order to further legitimate it as a form of objective knowledge or truth.

This thesis focuses on how the imbrication of neuroscience, technology, and biopolitical imperatives and their assimilation into society and culture creates new categories of human difference and personhood predicated on supposedly identifiable and measurable differences in the brain. One way of thinking about these is as a mechanism by which personhood and subjectivity are categorised by way of material models of cognitive difference. In order to explore the implications of this shift, this thesis focusses on three key research topics. First, it begins with a consideration of the neuro-turn and its biopolitical underpinnings. Second, it goes on to consider the impact of this on those subjects whose identities and subjectivities are defined by these new classifications of cognitive difference. Third, it addresses the significance of popular cultural narratives – particularly crime fiction – in mediating the neuro-turn.

At the centre of the project is the concept of the 'neural implantation' – the definition of which I discuss in greater detail below and which is indebted to Michel Foucault's description of the perverse implantation in the first volume of *The History*

of *Sexuality*.<sup>6</sup> I use the notion of implantation here to talk about the ways in which the concept of the atypical brain or cognitive difference gives rise to particular ontological categories or novel modes of being. To this end, chapter one looks at representations of cognitively enhanced humans, chapter two looks at figurations of autism, and chapter three examines the biomedicalisation of dementia and notions of “suffering” in the era of Alzheimer’s. There are many neural implantations with resulting subjectivities that have proliferated since the turn of the century such as those emerging from diagnoses of obsessive-compulsive disorder (OCD); attention deficit hyperactivity disorder (ADHD); eating disorders such as the classification and ontology of the ‘anorexic’; the ‘schizophrenic’; and more controversial figurations such as in neuroscientific models of the ‘paedophile’.<sup>7</sup> Each of these to varying degrees reflects new ontologies following the implantation/internalisation of cognitive difference. I have chosen to focus on autism, dementia, and enhancement in particular because the first two are the most culturally and biopolitically enmeshed ‘pathological’ models (though with autism notably recently becoming understood as a ‘natural’ difference), while enhancement provides a different ‘technological’ form

---

<sup>6</sup> Michel Foucault, *The Will to Knowledge: The History of Sexuality Volume 1*, trans. by Robert Hurley, (London: Penguin, 1998).

<sup>7</sup> See Gillian Tenbergen and others, ‘The Neurobiology and Psychology of Pedophilia: Recent Advances and Challenges’, in *Frontiers of Human Neuroscience*, vol. 9 (2015); see also reports of this in media: Ian Johnston, ‘Brains of paedophiles who abuse children are different to those who do not, scientists discover’ *Independent*, 25 October 2016 <<https://www.independent.co.uk/news/science/paedophile-brains-difference-child-sex-abusers-those-who-dont-study-a7378911.html>> [accessed 23 July 2019]. See also Kashmiri Gander ‘The man whose brain tumour ‘turned him into a paedophile’’, *Independent*, 24 February 2016 <<https://www.independent.co.uk/life-style/health-and-families/features/a-40-year-old-developed-an-obsession-with-child-pornography-then-doctors-discovered-why-a6893756.html>> [accessed 23 July 2019].

of cognitive difference, though one which is equally enmeshed in biopolitical imperatives and culture.

For Foucault, the nineteenth century saw atypical acts/perversities become implanted into the 'soul' of the person encapsulated in the birth of the figure of the homosexual man, whereby implantation produces distinct types of subjects and bodies. Through a close investigation of enhancement, autism, and dementia, I will show that Foucault's model of implantation offers a vital methodology for understanding the medical production and cultural fascination with cognitive difference today. This mirrors Stone's assessment that the turn of the twentieth-first century saw the locus of the self become rooted in the materiality of the 'soul'. Such neural implantations are always subjective and individual because they encompass a person's unique history and experience, but they are contingent on medical and neuroscientific models which make claims to generality and objectivity. For example, 'autism' as a diagnostic category is general and widely applicable; however, because neural implantations concern the 'soul' of the individual subject they are ultimately unique and see general diagnoses entwine with personal histories, cultures, and internalised disciplinary effects to produce new ontologies and ways of being. As such, I will argue that neural implantations play a formative role in our thinking about human value and the definition and limits of meaningful life today and in the future.

In order to set out the critical and conceptual framework that underpins the argument I develop in the thesis, the introduction first outlines existing discussions of and responses to the neuro-turn, before detailing Foucault's understanding of biopolitics and his description of the perverse implantation. It goes on to discuss the

rationale for my decision to explore the mediation of this implantation in a range of examples that broadly fall within the parameters of the crime genre. It concludes with an account of the development of my argument across the chapters in this thesis, which respectively demonstrate the ontological transformations that occur.

## Introduction: The Neural Implantation

*And no, autism (as well as ADHD, ADD, Tourette's, OCD, ODD etc) is not a 'gift'. For most it is an endless fight against schools, workplaces and bullies. But under the right circumstances, given the right adjustments it CAN be a superpower. I've had my fair share of depression, alienation, anxiety and disorders. But without my diagnosis, I would never have started school striking. Because then I would have been like everyone else. Our societies need to change, and we need people who think outside the box and we need to start taking care of each other. And embrace our differences. - Greta Thunberg, 2019.<sup>8</sup>*

### Theorising the Neuro-Turn

In 1990 President George H. W. Bush designated the coming decade as the 'Decade of the Brain'.<sup>9</sup> The nineties saw new technology such as functional magnetic resonance imaging (fMRI) and the start of the Human Genome Project initiate a social and cultural fascination with molecular medicine and its potential to unlock the mysteries of human life.<sup>10</sup> New drugs such as Prozac, approved for treatment of depression in 1987, or Adderall, approved for Attention Deficit Hyperactivity Disorder (ADHD) in 1996, offered new solutions to newly framed pathologies.<sup>11</sup> *Cruzan vs. Director, Missouri Department of Health*, the first 'right to die' case to reach the United State Supreme Court was decided in June 1990. It ruled that the right to die, even in 'persistent vegetative state', is not guaranteed by the

---

<sup>8</sup> Greta Thunberg, 2 April 2019, < <https://www.facebook.com/gretathunbergsweden/posts/today-is-autismawarenessday-proud-to-be-on-the-spectrumand-no-autism-as-well-as-/802407010127121/>> [accessed 24 February 2020].

<sup>9</sup> See Laura Salisbury, 'Translating Neuroscience: Fictions of the Brain in the 2000s', in *The 2000s: A Decade of Contemporary British Fiction*, ed. by Nick Bentley, Nick Hubble, Leigh Wilson (London: Bloomsbury Academic, 2015), pp.83-113 (p.83).

<sup>10</sup> Amongst other things, the cloning of Dolly the sheep, the wide-scale use of DNA profiling in policing and law, discourse and headlines linking specific genes for a range of personality or behaviours, and genetically modified crops saw the integration of biotechnology into everyday life.

<sup>11</sup> Take as exemplar Attention Deficit Hyperactivity Disorder (ADHD). Previously termed 'minimal brain dysfunction', ADHD diagnoses in children exploded from the 1980s with drugs such as Ritalin and Adderall liberally prescribed in USA to tackle its symptoms. See Nikolas Rose, *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century* (Princeton: Princeton University Press, 2007), p.119.

constitution, garnering significant media attention and a steep rise in advanced healthcare directions. The popularisation and translation of new brain imaging technologies, pharmaceuticals, genetic screening and profiling, and categories of disease into most facets of culture today marks Bush's declaration to be correct. It is for this reason I argue that, emerging in the 1990s, the neuro-turn is a historical and cultural shift producing a set of ideas about human life that raise significant epistemological and ethical issues.

This thesis looks specifically at how the neuro-turn creates new subjectivities and ontologies resulting from the technologies, laws, medical categories, cultures, and debates from the 1990s in what I term neural implantations. The above quotation from Greta Thunberg encapsulates this model of implantation. Thunberg, the young climate crisis campaigner, has become both the figurehead of the climate movement and a figurehead of cognitive difference today. This entwinement of neurological diagnosis, subjective difference, and politics will be a recurring theme throughout this thesis. Indeed, it is worth holding Thunberg's message in mind whilst reading this work as it foregrounds many of my arguments about how difference articulates and works in society and culture today, as well as the belief that we, as a society, need to 'embrace our differences'.

The academic currency of the 'neuro' is evident in the widespread consideration of new subjectivities and models of personhood. Jan De Vos argues that contemporary science has created a 'full-blown "subject of the sciences",

looking at itself, others, and the world, as a scientist'.<sup>12</sup> In other words, the notion that increasingly *we are all scientists now* regardless of training or expertise. Critical work on the neuro-turn is varied in terms of its evaluation and approach to this new paradigm. Des Fitzgerald and Felicity Callard articulate three main types of response from the humanities and social sciences: critical, ebullient, and interactive, in order to highlight the vast discrepancies in how supposedly neutral brain facts can be analysed and adopted by different disciplines.<sup>13</sup> According to Fitzgerald and Callard, critical responses hold that the practice of neuroscience needs reform and greater transparency in terms of its political and economic ties. What they call 'ebullient' responses 'take experimental results and theoretical statements from the neurosciences as more-or-less true' and extrapolate them for theoretical work in the art and humanities.<sup>14</sup> This approach, they note, is encapsulated in the philosophy of Catherine Malabou whose theory of plasticity, as I detail below, forms a theoretical counterpoint to much work in this thesis. Interactive responses characterise neither a 'desire to provincialize the pretensions of the neurosciences nor [...] an uncritical acceptance of insights from those spaces'.<sup>15</sup> They note that such responses are uncommon and represent a 'thankless task' given the lack of credence given to truly interdisciplinary work that values epistemological parity.

I use these responses primarily as guideposts to navigate existing academic scholarship pertaining to the neuro-turn. Their identification of ebullient responses

---

<sup>12</sup> Jan De Vos, 'What is Critique in the Era of the Neurosciences?', in *Neuroscience and Critique [Exploring the Limits of the Neurological Turn]*, ed. by De Vos, Jan and Ed Pluth (Abingdon: Routledge, 2016), p.29.

<sup>13</sup> Des Fitzgerald and Felicity Callard, 'Social Science and Neuroscience beyond Interdisciplinarity: Experimental Entanglements', *Theory, Culture, and Society*, 32.1, (2015), 3-32.

<sup>14</sup> Ibid. p.11.

<sup>15</sup> Ibid. pp.9-15.



is paramount to my consideration of Malabou's plasticity in chapters one and three, tempering what can readily become the allure of neuroscientific models and explanations in humanities work. Moreover, they also prove useful reminders that whilst interdisciplinary research is encouraged and often fruitful, it is only because of the distinct meaning making practices each discipline brings, which is why I understand this thesis as the humanities *interacting* with neuroscience to explore imaginative alternatives to the uncritical acceptance of its (often pathological) truth claims. Bearing Fitzgerald and Callard in mind, I now consider four influential responses to the neuro-turn that consider the emergence of new subjectivities, namely Nikolas Rose's 'neurochemical selves', Fernando Vidal's 'brainhood', Malabou's plasticity, and the rise of the 'neuro-novel', in order to situate my theorisation of the neural implantation within existing scholarship and culture.

### Neurochemical Selves

In *The Politics of Life Itself*, Rose uses the term 'neurochemical self' to identify the extent to which we have become 'somatic individuals'.<sup>16</sup> For Rose, this is a layering process, in which emerging biological models and explanations of selfhood attach to older psychological models and explanations of the self.<sup>17</sup> Key for the emergence of the neurochemical self is the flattening out of psychological depth and spaces. Where the psychological approach concerns itself with depth models of historical mental trauma, in 'this new age of personhood, psychiatry no longer distinguishes between organic and functional disorders'; in other words, 'mind is simply what brain does'.<sup>18</sup>

---

<sup>16</sup> Rose, *The Politics of Life Itself*, p.188.

<sup>17</sup> Ibid. p.222.

<sup>18</sup> Ibid. p.192.

Referencing epistemological and discursive changes brought by new technologies such as brain imaging and genetic screening, Rose notes that such a view of personhood produces different ways ‘individuals are governed’ and different ways that ‘they govern themselves’.<sup>19</sup> This shift encourages us to believe that the ‘mind seems visible in the brain’, effecting a reduction in the gap between person and organ. Indeed, since its publication in 2007, recent and relatively affordable technologies such as personal fitness trackers, sleep cycle monitors, and, referring to the introductory example, meditation monitors have become common ways of governing the self through the brain.<sup>20</sup> Rose’s primary concern is how medical treatments respond to the emergence of the neurochemical self, and given his thesis that mind is reducible to material brain, he maintains that whatever the method of diagnosis, be it brain scan or genetic screening, all ‘seem to end in the use of psychopharmaceuticals’.<sup>21</sup>

Rose cites compelling evidence for this. Industrial advertisement campaigns for mood and behaviour disorders such as depression and ADHD correspond to statistical booms in prescriptions.<sup>22</sup> These campaigns did not market emotional stability, but something altogether more elusive: hope. The neurochemical self, he argues, is partly contingent on the irreducible relationship of bioeconomics (of which

---

<sup>19</sup> *Ibid.* p.107.

<sup>20</sup> The Muse2 is, as of August 2019, a £239.99 ‘multi-sensor meditation device that provides real-time feedback on your brain activity, heart rate, breathing, and body movements to help you build a consistence meditation practice’. Its tagline is ‘Meditation Like You’ve Never Imagined’, predicated on the belief that ‘real-time brainwave feedback’ from an EEG improve meditative response <<https://choosemuse.com/muse-2/>> [accessed 7 August 2019]; For more on the increasingly quotidian influence of the EEG see Melissa M. Littlefield, ‘Instrumental Intimacy: EEG Wearables and Neuroscientific Control’ (Baltimore: Johns Hopkins University Press, 2018).

<sup>21</sup> Rose, *Politics of Life Itself*, p.209.

<sup>22</sup> *Ibid.* p.210.

the largely synonymous biotechnology, 'big pharma', and molecular medicine are central) and a particular kind of institutional ethics that pays lip service to risk factors, whilst simultaneously condoning and propagating influential ad campaigns.<sup>23</sup> Indeed, Adriana Petryna and Arthur Kleinman theorise the 'pharmaceutical nexus' to refer to the extent to which pharmaceuticals have become a globalised industry in which individuals and populations in the Global South are used to produce treatments and drugs for use in the Global North.<sup>24</sup> In other words, the kind of neurochemical self that Rose identifies is, within the larger nexus, a highly privileged position, given the differential global access to medicines emerging from the flattening out between mind and brain. However, Rose's neurochemical self is, like the subjects my thesis imagines, materialised and embodied in the citizen of the Global North with easy access to the myriad pharmaceutical and therapeutic outputs of material models of cognitive difference. He briefly considers 'neurochemical citizenship' to refer to the ways in which biosociality and advocacy emerge around particular neurochemical differences, before writing that 'to grasp the world in this way is to imagine the disorder as residing within the individual brain and its processes, and to see psychiatric drugs as a first line intervention'.<sup>25</sup> This is still very much the dominant model; however, my concept of the neural implantation intervenes here inasmuch as it acknowledges not merely that the disorder exists in the brain, but produces an ontological transformation in which the difference in the brain produce novel subjectivities.

---

<sup>23</sup> Ibid. p.215.

<sup>24</sup> Adriana Petryna and Arthur Kleinman, 'The Pharmaceutical Nexus', in *Global Pharmaceutical: Ethics, Markets, Practices*, ed. by Adriana Petryna, Andrew Lakoff, and Arthur Kleinman (Durham: Duke University Press, 2006).

<sup>25</sup> Rose, *Politics of Life Itself*, p.223.

In the conclusion to his chapter, Rose refers to Gilles Deleuze's description of a control society. Deleuze develops the concept of a 'control society' to supplement Foucault's notion of a disciplinary society and for Rose, this is a recognisable feature of neurochemical selfhood. To distinguish the two briefly, in a disciplinary regime, new modes of spatial and temporal organisation produce new modes of subjection. Foucault famously compares the school, to the factory, to prison and to the hospital in terms of the organisation of space and the demarcation of time via the bell. In contrast, control societies are ostensibly much freer in the sense that these institutions are replaced with flexibility such as remote working or flexi-time but through which 'control is continuous and integral to all activities and practices of existence'.<sup>26</sup> Rose ends with ideas of control to underscore the notion of a self that must constantly self-monitor (a process exemplified in the use of sleep and fitness monitors discussed above). Rose's use of Deleuze is compelling; however, I would update Rose's rationale slightly. For Rose, the pharmacological outputs are crucial to this distinction between disciplinary and control societies, but Deleuze's description of a control society contains something other than pharmaceuticals that seems even more uniquely akin to today's neuro-culture. Deleuze describes disciplinary power as being contingent on spaces of enclosure that are 'distinct castings' such as prisons and schools. However, controls are 'a modulation, like a self-deforming cast that will continuously change from one moment to the other'.<sup>27</sup> In other words, the mechanisms of control will constantly adapt. Here it is worth foregrounding neuroplasticity, which is a central component of the neuro-turn and the neural

---

<sup>26</sup> Ibid.

<sup>27</sup> Gilles Deleuze, 'Postscript on the Societies of Control', *October*, 59, (1992), pp.3-7 (p.4).

implantation today. This describes the biological process in which the brain adapts and changes over time and throughout adulthood. Chapters one and three in particular focus on different aspects and representations on neuroplasticity, but it seems important here to highlight neuroplasticity's dominance as evidence that in the decade since Rose's theorisation of the neurochemical self, neuro-epistemologies have evolved in regard to how we think about personhood and subjectivity today. If Rose elucidates neuroscience's hegemonic position as the interpreter of the self in the twenty-first century, Fernando Vidal casts a historical gaze to question how we arrived at this hegemony.

### Brainhood and History

Vidal writes, 'if personhood is the quality or condition of being an individual person, *brainhood* could name the quality or condition of being a brain'.<sup>28</sup> This much-cited concept of brainhood, or, what he otherwise terms the 'cerebral subject', is an important theoretical concept that underpins much of the debate in this thesis in terms of personhood. Vidal notes the cultural inclination to reject the idea that we *have* a brain and seeks instead to trace the history of the seemingly self-evident truth, 'you are your brain'.<sup>29</sup> Vidal's key contribution is to turn the expected answer on its head. For him, it is not neuroscience that proves we are our brains, rather it is this knowledge that is fundamental to the flourishing of this discipline. He is critical of the 'revolutionary rhetoric' surrounding brainhood, arguing that such exaggeration 'has an obvious self-serving function, sustaining the cerebral subject

---

<sup>28</sup> Fernando Vidal, 'Brainhood, anthropological figure of modernity', *History of the Human Sciences*, 22.1 (2009), 5-36 (p.5). Original italics.

<sup>29</sup> Ibid.

ideology, and reinforcing the alliance between the norms and ideals of individualistic autonomy and self-reliance on the one hand, and on the other hand the prestige of the advanced technology supposed to demonstrate that we are our brains'.<sup>30</sup> Taking this position as a starting point, Vidal's critique is persuasive in its delineation of two key themes of this thesis: that the rhetoric of potentiality maintains the norms alongside which neural implantations occur, and that neuro-technology is placed on an epistemological pedestal. Indeed, I explore the relationship between neoliberal modes of governance and neuroscientific models and technologies in chapter one.

Yet, Vidal's tracing of brainhood from Descartes to phrenology, to cortical maps, and through to contemporary models of neuroplasticity, causes today's cerebral subject to lose its particular historical contingency given the massive biopolitical changes that have occurred during the centuries Vidal considers. Vidal is correct in his assertion that humanity has long found the locus of the self in the brain, but it would be inaccurate to ignore the specific epistemologies of brainhood at different times. For instance, Justine S. Murison attempts to de-locate the neuro-turn from the twenty-first century. She cites numerous popular narratives of phrenology and mesmerism such as Harriet Martineau's 1844 treatise on mesmerism or Edgar Allen Poe's short story 'Mesmeric Revelations' as Victorian examples of public interest in the brain, arguing that this twenty-first century neuro-turn is in fact a 'return' to frameworks that existed in the nineteenth century.<sup>31</sup> However, it is vital

---

<sup>30</sup> Ibid. p.10.

<sup>31</sup> Harriet Martineau, 'Miss Martineau on Mesmerism', in *Phlanx* 1:3 (1844), pp.1-23; Edgar Allen Poe, 'Mesmeric Revelation' in *The Collected Works of Edgar Allan Poe – Volume 3* (Cambridge MA: Harvard University Press, 1978); Justine S. Murison, "'The Paradise of Non-Experts": The Neuroscientific Turn of the 1840s United States', in *The Neuroscientific Turn: Transdisciplinarity in the Age of the Brain*, ed. by Melissa M. Littlefield and Jennel M. Johnson pp.29-48 (p.43).

not to ignore the distinct effects resulting from contemporary biopolitical imperatives and institutional frameworks we see today. For, where this twenty-first century biopolitical framework bolsters the legitimacy, security and 'objectivity' of neuroscience's truth claims, the scientific community of the nineteenth century considered mesmerism and phrenology to be at best fringe sciences.<sup>32</sup> Thus, while Vidal notes that the nineteenth century saw an interest in more institutionally legitimate brain sciences such as localisation, I argue that the holistic imbrication of biopolitical legitimacy, cultural representation, and the notion of the brain as locus of the self is a unique feature of the neuro-turn that is distinct from the historic contingency of brainhood. I am not alone in stressing 'neuroscience' to be a particular historical shift. In their theorisation of the 'neuromolecular gaze', which they define as a 'common vision of life itself' deriving from perspectives, techniques, and practices involved in contemporary neuroscience, Joelle M. Abi-Rached and Nikolas Rose cite the 1960s as its inception.<sup>33</sup> In contrast to Vidal, they adopt a genealogical approach to disrupt the notion of historical continuity, and mark 1960s 'neuroscience' as being a 'break' in the history of the brain.<sup>34</sup>

The primary limitation of Vidal's approach is that, as my theorisation of the neural implantation will show, today's genetic and neuroscientific models of brainhood create specific ethical and material effects because of the intractable and

---

<sup>32</sup> Jessica Pykett, *Brain Culture: Shaping Policy through Neuroscience*, (Bristol: Policy Press, 2015), p.10; Francois Magendie notes: 'phrenology, a *pseudo-science* of the present day; like astrology, necromancy, and alchemy of former times, it pretends to localize in the brain the different kinds of memory. But its efforts are mere assertions, which will not bear examination for an instant' in *An Elementary Treatise on Human Physiology*, trans. by John Revere, (New York: Harper & Brothers Publishers, 1855) p.150.

<sup>33</sup> Joelle Abi-Rached and Nikolas Rose, 'The birth of the neuromolecular gaze', *History of The Human Sciences*, 23.1 (2010), 11-36 (pp.12-13).

<sup>34</sup> *Ibid.* p.31.

historically unique biopolitical imperatives underpinning them. This is particularly pertinent for the new subjectivities they effect. While it is certainly true as Vidal claims that material and brain-based models of selfhood predate contemporary neuroscientific models and explanations, it bears repeating that new neuroscientific models and explanations produce new subjects and ontologies, partly because of pre-existing notions of brainhood, but crucially only because of contemporary neuroscience's reliance upon institutional legitimacy. In other words, something specific is happening today that produces these subjects, and I argue it is the unique imbrication of contemporary biopolitical imperatives, including a particular kind of automatic faith in the models and explanations emerging from the field of neuroscience. As I explore throughout the thesis, what may appear to be outdated tropes and prejudices in fact proliferate during the neuro-turn because they find a renewed currency and emerge and attach to the widespread legitimacy of the 'neuro'. In this regard, playing on V.S Ramachandran's popular neurological case study book *Phantoms in the Brain*, I use the phrase 'phantoms of the brain' to retain the historical contingency of brainhood – by which I mean the effects of long knowing that we are our brains, whilst highlighting the particular effects brought by the neuro-turn.<sup>35</sup>

Ramachandran's phantoms refer to neurological conditions that cause phantom disorders or symptoms because of differences in the brain. Most notable is the phantom limb: 'an arm or leg that lingers indefinitely in the minds of patients

---

<sup>35</sup> V.S Ramachandran, *Phantoms in the Brain: Human Nature and the Architecture of the Mind*, (London: Harper Perennial, 2005).



long after it has been lost in an accident or removed by a surgeon'.<sup>36</sup> I adopt this concept to argue that cultural discourses of the brain are affective phantoms of the materiality of the brain proper. So, like phantom limbs, stories, narratives, characterisations, politics, law, brain history, and psychologies, may scratch, affect, or influence our twenty-first century brainhood, our sense of self, and our personhood. These are phantoms of the kinds of narratives elided or updated by today's neuroscience, medicine, and technology. However, they are effective only because of the emerging hegemony of the neuro, which because of its biopolitical claims to truth and epistemological proliferation justifies or validates the phantoms. These phantoms can be damaging, as I will show in chapter two's exploration of contemporary attempts to attach inexplicable societal violence to autism as a neurological condition, which has phantom roots in nineteenth century conflation of cognitive difference and crime. Or the way in which Bruno Bettelheim's theory of the 'refrigerator mother' remains a potent and damaging trope in many autistic and atypical narratives.<sup>37</sup> These phantoms can also be instructive, such as in fictional narratives whose plotting or characterisations address and challenge biopolitical ethics or lazy stereotypes of difference such as with the figure of the 'dementia sufferer' or 'demented'. Indeed, in keeping with Vidal's historical framing, and linking to Ramachandran's explanation that a phantom is the result of amputation or accident, it seems pertinent to highlight that my concept of phantoms encompasses

---

<sup>36</sup> Ibid. p.22.

<sup>37</sup> In *The Empty Fortress* Bettelheim posits that autism has an environmental aetiology caused by cold parental attitudes or neglect. This is a psychological phantom which still finds cultural expression today in novels such as Lionel Shriver's *We Need to Talk About Kevin* (2003) and Antonette van Heughten's *Saving Max* (2010). Both novels centre on the relationship between a mother and an autistic son and both retain the phantom of Bettelheim's theory which seem only to act as a way of castigating and punishing working mothers. Bruno Bettelheim, *The Empty Fortress: Infantile Autism and the Birth of the Self* (New York: The Free Press, 1972).

the psychological models that neuroscience at first appears to have superseded. I argue that far from being replaced, these remain phantom, as I demonstrate in my psychoanalytic reading of dementia fiction in chapter three, where I argue for a more Freudian model of elasticity over Malabou's theorisation of the plastic subject.

### The Plastic Subject

Neuroplasticity, the biological process of the brain adapting over time, has translated in society and culture into influential epistemologies and ontologies of subjectivity. If the neurochemical self and one's 'brainhood' add credence to the belief that we are our brain, then neuroplasticity and the resulting plastic subject tells us that we are our brain that changes. The logic underpinning its cultural attraction is clear: if we increasingly understand that subjectivity results from our brain's micromolecular processes, knowing these processes constantly adapt gives rise to the illusion of a new kind of biological potential. As an example, it has long been known that studying can lead to proficiency in a second language; however, experiments on mice's brain chemistry are extrapolated in media headlines into possibilities of fantastical, faster solutions: 'Wonder pill could help adults learn new language or instrument just like a child', notably, however, only through the manipulation and extension of neuroplasticity.<sup>38</sup>

Neuroplasticity underpins Malabou's philosophy and her work sees the attempt to construct a plastic subject and ontology. Her theory of plasticity breaks

---

<sup>38</sup> 'Wonder pill could help adults learn new language or instrument just like a child', *Express*, 29 June 2017, <<https://www.express.co.uk/life-style/life/822837/Wonder-pill-learning-language-instrument-adults-children>> [accessed 8 August 2019].

down into two main aspects, plasticity of the brain, and plasticity of time. She addresses the first aspect directly in *What Should We Do with Our Brain?* (2008). According to Malabou, we have not yet realised the plastic potential of our brains. By this she means the brain's ability to give and receive form, as well as its ability to destroy itself. Form in this context refers to the materiality of the brain and the central nervous system. Giving form, or rather, producing new form delineates a positive plasticity and includes self-directed brain changes that make breaks with hegemonic ideologies, which I explore in chapter one. Receiving form is a negative or passive plasticity and typifies the cognitive and emotional apathy resulting from political-economic pressure. Finally, for Malabou, diseases such as Alzheimer's are exemplars of a destructive plasticity – the permanent destruction of form but with the capacity to re-form into something entirely different.<sup>39</sup> She suggests that if we realise our brain's potential then we would be able to enact a consciousness 'at once, philosophical, scientific, and political'.<sup>40</sup> Malabou challenges hegemonic discourses of 'flexibility' which she argues control people into submission because they only allow for the negative reception of form – which is to say being manipulated by external pressures. She refers to examples such as the need for 'flexibility on the job, of one's schedule' as socioeconomic frameworks which mould us and inhibit more agential form production.<sup>41</sup> For her, a subjectivity conceived of in terms of cerebral plasticity is the only one that also allows for an agential giving or production of form.

---

<sup>39</sup> I use these positive, negative, and destructive descriptions to describe Malabou's theoretical aims. Positive implies a kind of self-willed manipulation of the brain to enact changes you want to make. Negative reflects a kind of Foucauldian discipline, and destructive are ambivalent neural accidents that cause varying degrees of brain difference.

<sup>40</sup> Catherine Malabou, *What Should We Do with Our Brain?*, trans. by Sebastian Rand (New York City: Fordham University Press, 2008), p.2

<sup>41</sup> *Ibid.* p.12.

This is important, she argues, because ‘humans make their own brain and they do not know that they do so’.<sup>42</sup> Ultimately, her answer to the titular question ‘what should we do with our brain’ is ‘to lower our self-controlling guard, to accept exploding from time to time [...] to visualise the possibility of saying no to an afflicting economic, political, and mediatic culture that celebrates only flexibility’.<sup>43</sup> In other words, through plasticity, through the knowledge that we can create our own subjectivity through material forms, we can not only learn faster, though this notion is too bound up with the rhetoric of late capitalist ideology for Malabou, but also break through the ideological impasses from which flexibility emerges to ‘entertain a relation with [our] brain as the image of a world to come’.<sup>44</sup> Malabou’s plasticity is thus a dynamic process of ‘metamorphosis’, by turns productive, negative, and destructive.<sup>45</sup>

This quasi-utopic vision of a world-to-come ends Malabou’s book and appeals to the second temporal-based aspect of her philosophy which is equally important in relation to the epistemology and ontology of the plastic subject. In *The Future of Hegel* (2005), Malabou theorises the concept *voir venir* (translated by Lisabeth During as ‘to see (what is) coming’), which helps account for the ways such metamorphosis could occur. Malabou explains *voir venir* as ‘the *anticipatory structure* operating within subjectivity itself’, explaining that in French the term means both ‘being sure of what is coming’, and ‘not knowing what is coming’.<sup>46</sup> In other words, plasticity

---

<sup>42</sup> Ibid.

<sup>43</sup> Ibid. p.79.

<sup>44</sup> Ibid. p.82.

<sup>45</sup> Ibid. p.69.

<sup>46</sup> Catherine Malabou, *The Future of Hegel: Plasticity, Temporality, and Dialectic*, trans. by Lisabeth During (Abingdon: Routledge, 2005), p.13.

represents the interplay of ‘teleological necessity and surprise’, two elements that are particularly central to the plastic subject.<sup>47</sup> Ideas of futurity are thus inherent to the plastic subject; on the one hand, plasticity has a teleological quality in which an expectative anticipatory subjectivity dominates, on the other hand, plastic subjectivity must also be able to be surprised, and in being so be able to re-form, change, and metamorphosize. In his preface to the book, Jacques Derrida notes that *voir venir* is ‘to anticipate, to foresee, to presage, to project’ and ‘means at the same time to anticipate and let oneself be surprised’.<sup>48</sup> This interplay between both a known and surprising future is what allows for Malabou’s answer about what we should do with our brains, ‘to lower our self-controlling guard, to accept exploding from time to time [...] to visualise the possibility of saying no’.<sup>49</sup> In short, plastic subjectivity is bound to that which is to come, evident through Malabou’s description of a teleological anticipation (albeit with some surprises), or in Derrida’s reading of a more active anticipation of projection in order to enable re-formations of that subjectivity.

Criticism of Malabou’s plasticity comes on two main fronts. First, Fitzgerald and Callard consider her work to be exemplary of the ebullient mode of philosophical engagement with neuroscience. They note Malabou’s lack of ‘scientific nuance and breadth’ demonstrated by a ‘limited engagement with peer-reviewed scientific publications’.<sup>50</sup> In other words, Malabou’s formation of plastic subjectivity is founded

---

<sup>47</sup> Ibid.

<sup>48</sup> Jacques Derrida, ‘Preface’, in *The Future of Hegel: Plasticity, Temporarily, and Dialectic*, pp.vii-xxvii (p.ix).

<sup>49</sup> Malabou, *What Should We Do with Our Brain?*, p.79.

<sup>50</sup> Des Fitzgerald and Felicity Callard, ‘Social Science and Neuroscience beyond Interdisciplinarity: Experimental Entanglements’, p.12.

on limited neuroscientific data, despite the objective image of neuroscience underpinning its claims. The second criticism regards the 'plasticity' of the plastic subject itself. What I mean by this is that the plastic subject, far from offering metamorphic potential to escape hegemonic ideologies and material effects of contemporary economic policy, fails to escape the trappings of neoliberalism itself.<sup>51</sup>

The relationships between neuroplasticity and neoliberalism are explored in detail by Victoria Pitts-Taylor's content-analysis of 250 media articles relating to neuroscience between 1999-2009. Approximately one third of these articles focused on neuroplasticity, which Pitts-Taylor separated into four main subgroups:

First, the brain is described as potentiality: it is positioned in terms of resource for the body/self that is both limitless and largely untapped. Second, the plastic brain is celebrated for its flexibility, its need for newness, and its adaptability. Third, brain health and performance are linked to personal responsibility, and discourse about brain health draws from metaphors about labor and physical fitness. Finally, the brain is linked to risk.<sup>52</sup>

Pitts-Taylor argues that the biological fact of neuroplasticity has been co-opted to align with key elements of neoliberal ideology and its emphasis on the priority of the individual over communal bonds. For example, we see the use of a dominant neuroscientific concept like plasticity deployed to present neuronal health as a matter for the individual. The four subgroups that she identifies are typical of neoliberal modes of subjectivity. First, plasticity is tied to potential, second to adaptability and a 'need for newness', third to self-care, and finally to a plethora of risk factors. The links to Malabou's initial criticism of flexibility, which she demarcates

---

<sup>51</sup> As David Harvey explains, neoliberalism 'holds that the social good will be maximised by maximizing the reach and frequency of market transactions', by seeking 'to bring all human action into the domain of the market'. David Harvey, *A Brief History of Neoliberalism* (Oxford: Oxford University Press, 2007), p.3.

<sup>52</sup> Victoria Pitts-Taylor, 'The plastic brain: neoliberalism and the neuronal self', *Health*, 14.6 (2010), 635-652 (p.641).

as the passive or negative reception of form, are clear given that Pitts-Taylor finds the plastic brain situated alongside/between existing biopolitics, adapting around them rather than undermining their credibility. It is in this spirit that Pitts-Taylor challenges Malabou's differentiation between plasticity and flexibility. She writes that Malabou simultaneously champions plasticity as a new ontology based on biological fact, whilst deriding flexibility as an element of neoliberal ideology and its attendant epistemological framework. Pitts-Taylor is rightly suspicious of this model arguing that plasticity '*can't* be extracted from the epistemological' because if the biological fact of plasticity is correct, brains are always already shaped by, and shaping, the culture and ideology in which they operate.<sup>53</sup> A plastic ontology cannot be extracted from a neoliberal epistemology because, by the very logic of how the biological fact of neuroplasticity works, they are indivisible and shape each other.

As I detail in my extended discussion of the neural implantation below, neoliberalism with its particular biopolitical effects, and its appropriation of plasticity, is a constitutive feature of certain neuro-epistemologies of the subject today, particularly in relation to the provision of health-care and the belief that enhancing one's cognition will effect an enhancement of one's flourishing. Neoliberalism is important in this regard because of its extension of social freedom to some previously subordinated demographics. For, if one dominant consequence of neoliberal economics is the incursion of the market into all spheres of life it makes no logical sense to discriminate against economically viable groups hitherto discriminated against such as the LGBT+ community. To this extent, Jeffrey Weeks

---

<sup>53</sup> Ibid. p.648.

argues that Thatcherism and Reaganomics saw (against their best efforts) the schism between a conservative social agenda and economic liberalism close. As Weeks puts it in opening market access ‘there seems no logic in blocking a freedom to choose your sexual lifestyle, your identity, or your fantasies’.<sup>54</sup> Weeks notes two primary effects of this. On the one hand, it allows an escape from ‘repressive traditions’ and on the other it can create ‘an ethical desert’ in which individual freedom to choose becomes tied to wealth and narrowly conceived notions of consumption at the expense of notions of community, communal obligations and social cohesion.<sup>55</sup>

A long-standing criticism of the mainstream acceptance of LGBT+ is that it comes only through the subscription to heteronormative models, in other words, the cost of liberal ‘inclusion’ is the adoption of normative narratives, such as monogamy, mortgages, and suburban lifestyles. Indeed, extrapolating such arguments into discourses of brainhood and cognitive difference illuminates certain truths regarding the kinds of cognitive difference for which society makes room. Some types of autism or autistic expressions have become more economically viable than other categories of difference and enjoy a particular kind of prestige, notably regarding technological savvy as I explore in my reading of autism in chapter two. However, David T. Mitchell and Sharon L. Snyder note that neoliberal ‘inclusion’ typically demands a similar normative price for disabled people, arguing that inclusion should only be considered so *‘if disability becomes more fully recognised as providing alternative values for living that do not simply reify concepts of normalcy’*.<sup>56</sup> People with a range of

---

<sup>54</sup> Jeffrey Weeks, *Invented Moralities: Sexual Values in an Age of Uncertainty* (Cambridge: Polity Press, 2007), p.29.

<sup>55</sup> Ibid.

<sup>56</sup> David T. Mitchell and Sharon L. Snyder, *The Biopolitics of Disability: Neoliberalism, Ablenationalism, and Peripheral Embodiment* (Ann Arbor: University of Michigan Press, 2018), p.5. Italics in original.



cognitive differences have had to subscribe to this normative paradigm, and still do. The central aim of this research is to contextualise cognitive differences in cultural discourse to understand the normalising, stigmatising, and celebratory ways they are represented and the kinds of subjectivities these might elicit.

Neoliberalism plays a central role in twenty-first century subjectivity and identity formation because it has, among other things, engendered a preoccupation with the future and turned the self and body into a site for constant improvement, change, and manipulation. Melinda Cooper refines David Harvey's influential thesis to argue that neoliberal economic models combine with biotechnology to develop a state in which life, and its molecular manipulation, represents an indefatigable surplus value. She describes how biotechnology's model of research and development aligns with neoliberal post-Fordist styles of speculative production, enabling 'production to remain in a permanent state of self-transformation, arming it with a capacity to respond to the most unpredictable of circumstances, to anticipate and escape the possible "limit" to its growth'.<sup>57</sup> Note the centrality of anticipation for both neoliberal biopolitics and Malabou's *voir venir*, and how both plasticity and biotech exist as states of self-transformation in order to continue growing, to keep improving, and to maintain 'progress'. Applying Cooper's thesis of neoliberal biopolitics to the everyday highlights similar investments in speculation and promise regarding cognitive difference. Particularly notable is the promise of (pharmaceutical) cures in the case of dementia. However, when a seemingly endless stream of promises at a macro biopolitical level, combines, at a subjective level, with

---

<sup>57</sup> Melinda Cooper, *Life as Surplus*, p.24.

liberal 'normative' inclusion or differential access to healthcare, the 'promise' of a better or progressive future is untenable, as is an ontology of plasticity as described by Malabou, which demarcates Alzheimer's as 'destructive'.

Yet, that neuroplasticity has become appropriated by hitherto hegemonic ideologies of individualism and speculation is unsurprising. Laura Salisbury and Hannah Proctor, as well as Cathy Gere, argue that the plastic brain is embedded in the specific (geo)politics of its time.<sup>58</sup> Gere explains that in the USA the role of plasticity has increased and decreased depending on contemporary foreign policy. Cold War anxieties of brainwashing made behavioural models of cognition (and its advocacy of environmental influences) become synonymous with Stalin's totalitarian politics.<sup>59</sup> In her words, 'in the complex welter of cold war politics, human and moral freedom was possible only if neural plasticity was limited'.<sup>60</sup> Whereas, in the Soviet state, Salisbury and Proctor explain that neuroplasticity became the official view, allowing state management of external influences to control life in the hope of creating social prosperity for all.<sup>61</sup> In other words, the American emphasis on freedom and fear of communism drove ideology away from models that emphasised environmental influence, whereas the Soviet state harnessed the inherent potential of plasticity in the hopes of creating their new vision for humanity.

---

<sup>58</sup> Laura Salisbury and Hannah Proctor, 'The History of a Brain Wound: Alexander Luria and the Dialectics of Soviet Plasticity', in *Plasticity and Pathology: On the Formation of the Neural Subject*, ed. by David Bates and Nima Bassiri, pp.194-218; Cathy Gere, 'Plasticity, Pathology, and Pleasure in Cold War America' in *Plasticity and Pathology: On the Formation of the Neural Subject*, ed. by David Bates and Nima Bassiri, pp.35-64.

<sup>59</sup> Gere, 'Plasticity, Pathology, and Pleasure', p.48.

<sup>60</sup> Ibid. p.60.

<sup>61</sup> Salisbury and Proctor, 'The History of the Brain Wound', p.178; See also how Lamarckist views of acquired characteristics were adopted into official Soviet policy because geneticists were seen as smuggling capitalist ideas into USSR, Maurizio Meloni, *Political Biology: Science and Social Values in Human Heredity from Eugenics to Epigenetics* (New York: Palgrave Macmillan, 2016), p.122.

Gere notes how neuroplasticity is now the accepted neuroscientific school of thought in America, arguing that it suggests an epistemological freedom away from biological determinism.<sup>62</sup> In other words, plasticity had a politically driven *volte-face*: where it once threatened control it now paradoxically promises freedom. Above, I aligned this view of plastic freedom with neoliberalism, the logic of which dictates that discrimination along traditional signifiers of difference is economically counter-intuitive, a logic that also extends into the social and cultural spheres. However, this thesis posits that such a social freedom or ‘neuronal’ freedom is limited for those considered to have cognitive difference. Moreover, whilst neoliberalism has hitherto underpinned models of subjectivity, even these liberal ‘claims’ to freedom are now being directly revoked.

Populist discourses and political events emerging in response to neoliberal failings curtail this notion of individual freedom, choice, and self-construction. I explore this in detail in chapter one; however, as an example, the neoliberal mantra ‘you can be anything you want to be’ implied in the move away from biological determinism is undermined by emerging biologist discourse encapsulated in President Donald Trump’s proselytizing about the heritability of his ‘good’ brain. He tweeted: ‘What my father really gave me is a good (great) brain, motivation and the benefit of his experience-unlike the haters and losers (lazy!)’.<sup>63</sup> The implication is that his biology has uniquely determined his ability to ‘succeed’, and by proxy implies

---

<sup>62</sup> Gere, ‘Plasticity, Pathology, and Pleasure in Cold War America’, p.61.

<sup>63</sup> Donald J. Trump, Twitter, June 30 2013,

<<https://twitter.com/realdonaldtrump/status/351119135830327298>> [accessed 9 August 2019].

See also a compilation video made by *Time* documenting the many instances he has referred to his genes in relation to his success, and that his children will similarly inherit them. *Time*, *Donald Trump Believes His Genes Are The Secret To His Success, Says Children Will Benefit*, YouTube, 12 September 2017, <<https://www.youtube.com/watch?v=qZffKgGiizI>> [accessed 9 August 2019].

those who have not 'succeeded', do not have a good biological makeup. This is diametrically opposite to the transformative, if superficial, potential offered by plasticity, and the belief that biology does not represent a form of destiny. Here, the work of Gere, and Salisbury and Proctor in underlining the specific geopolitics involved in plasticity's assimilation – or not – into society and culture highlights the object plasticity (as a cultural discourse) to be an affecting phantom of the brain. The plastic subject is thus not simply indicative of being aware of one's neuronal adaptability; rather, it enmeshes in a biopolitical matrix that refuses to allow the stable ontology Malabou compels. In other words, and to extend Pitts-Taylor's difficulty with Malabou's extraction of ontology from epistemology, Malabou's call to harness one's plasticity seems to presuppose a material neutrality that cannot and does not exist.

Work such as Jonathan Metzl's genealogies of Prozac show how neuroscience's claims to objectivity are always already encoded and embedded within myriad cultural codes and prejudices. Metzl notes the difference between perception and reality regarding Serotonin, which is 'an all-egalitarian compound' that 'functions largely the same in women and in men, in African Americans and Native Americans; psychotropic medications performs the same functions in heterosexuals, and in gay butch bottoms, and in monks'.<sup>64</sup> Though not his frame of reference, Metzl's point here is ostensibly that the kinds of categories established in the perverse implantation (gay butch bottoms) are meaningless and hold no signification for objective science, particularly at a molecular level where even

---

<sup>64</sup> Jonathan Metzl, *Prozac on the Couch: Prescribing Gender in the Era of Wonder Drugs* (Durham: Duke University Press, 2003), p.191.

apparent or superficial differences of gender, race, or behaviours are removed. However, Metzl methodically unpicks the ways in which ‘imbalances’ of this molecule are not objective but are inseparable from gendered scripts.<sup>65</sup> I use Metzl’s example to argue that it is not enough ebulliently and uncritically to realise the brain’s plasticity (however that might be achieved), rather, how the brain is discussed, thought of, and acts within contemporary biopolitical imperatives must be considered in a more critical sense in order to understand its full effects. Is this or that brain thought to be plastic (i.e. does it have endless potential), or is it thought to be biologically fixed as in Trump’s model? What does it mean to consider a brain as ‘healthy’, ‘normal’, or ‘different’, and what are the effects of such in a particular place and time? I argue that it is in cultural narratives that these tensions are best explored.

### The Neuronovel

The fourth key iteration of the neural implantation is the interaction of neuroscience with cultural narratives. If the neurochemical self, brainhood, and the plastic subject give epistemological coherence to the ontological changes occurring in the neuro-turn, I now look at how these are mediated in popular discourse. In 2009, Marco Roth

---

<sup>65</sup> Metzl notes the decline of male-directed psychoanalysis toward the end of the twentieth century and argues convincingly that this did not see the end of the containment and investigation of women’s minds but rather that this process became materialised into pharmaceuticals such as Prozac. These neurological pills continue the history of psychological normative containment of women (see Elaine Showalter’s thesis of ‘the female malady’ in terms of the rest cure, electroconvulsive therapy, and psychoanalysis). For Metzl, even when ‘cloaked in the novelty of the neurotransmitter’ women’s brains and minds still represent ‘the emotionality from which civilisation needs to be protected’ (*Prozac on the Couch*, p.193). In other words, the molecular generality of antidepressants offers the appearance of freedom whilst in fact reinforcing a gendered psychoanalytic model of repression. The material objectivity of serotonin imbalance is a wolf in androgynous clothing: making claims to a-gendered generality, but signifying and reinforcing a gendered image of feminine deficiency. Elaine Showalter, *The Female Malady: Women, Madness, and English Culture, 1830-1980* (London: Penguin Books, 1985).

coined the term 'neuronovel' to describe of a group of recent novels 'wherein mind becomes brain' with particular focus on Ian McEwan.<sup>66</sup> Adopting the term, Laura Salisbury describes how the 2000s saw the rise of the neuronovel, explaining that this reflects a move beyond the psychological trauma narratives dominant in the 1990s in favour of emerging neuroscientific models.<sup>67</sup> In agreement with Rose's assessment of neuroscience flattening psychological depth, she argues that fiction is able to counter this in its consideration of the schism between objectivity (through third person narrative) and subjectivity (first person narrative), resulting in sites where we can understand how our 'contours are being retraced' in light of the flattening spaces.<sup>68</sup>

In 2015, *Modern Fiction Studies* published a special issue on the theme of 'Neuroscience and Modern Fiction' which was introduced by Stephen Burn. His analysis concurs with that of Roth and Salisbury in noting that the millennium saw the popularisation of the neuronovel. However, he suggests that it is a form much more dynamic than 'pop science rhetoric and Ian McEwan's recent fiction'.<sup>69</sup> The special edition rectifies this legitimate criticism of Roth's account of the neuronovel with a more generically diverse exploration of neuroscience and contemporary fiction. Elsewhere, a 2008 special issue of the *Journal of Literary & Cultural Disability Studies* introduced and edited by Lucy Burke considered the theme of 'cognitive

---

<sup>66</sup> Marco Roth, 'The Rise of the Neuronovel', *Recessional*, 8 (2009) <<https://nplusonemag.com/issue-8/essays/the-rise-of-the-neuronovel/>> [accessed 29 July 2019]. Roth's is not the first identification of a neuroscientific turn in fiction; however, it is arguably the most influential. See also Harvey Bloom, 'Neuro-Narratives', *The American Prospect*, 9 November 2001 <<https://prospect.org/article/neuro-narratives>> [accessed 21 August 2019].

<sup>67</sup> Laura Salisbury, 'Translating Neuroscience: Fictions of the Brain in the 2000s'.

<sup>68</sup> *Ibid.*, p.110.

<sup>69</sup> Stephen J. Burn, 'Neuroscience and Modern Fiction', *Modern Fiction Studies*, 61.2 (2015), 209-225 (p.213).

impairment'. Burke reflects in the introduction that 'impairment' is not an appropriate term for the range of 'cognitive difference' in society and culture. Highlighting the biopolitical effects of difference, Burke notes how Alzheimer's, autism, and schizophrenia are central to the biopolitical narrative of difference.<sup>70</sup> She writes that such labels are 'evoked to legitimate the ends of a range of ethically contested practices' and 'are central to the neuroscientific quest to identify genes and brain types in order [...] to find the ever more elusive miracle cure'.<sup>71</sup> T.J. Lustig and James Peacock describe the 'syndrome syndrome' as being inherent to much modern fiction. Tracing the change from psychoanalytic models of trauma that dominated the second half of the twentieth century, they recognise an emerging structure of feeling in literature that 'posits another more material realm of causality: the symptom here is not generated by familial, social, or historical experience but by physical experience; that is, our own embodiment'.<sup>72</sup> Like Burke, Lustig and Peacock have critically informed my thesis; however, while Burke argues for the need to interrogate the ideological and political dimensions of contemporary neuroculture and Lustig and Peacock stress the effects of medical models of embodiment, both understand cognitive difference predominantly through a pathological or disability studies lens, and neglect the kinds of cognitive difference effected from neuroscientific technologies such as pharmaceutical enhancements, a critical intervention this thesis makes. What is more, the 'syndrome syndrome' arises from literature having emerged from a biomaterial structure of feeling, whereas the the

---

<sup>70</sup> Lucy Burke, 'Introduction: Thinking about Cognitive Impairment' *Journal of Literary and Cultural Disability Studies*, 2.1 (2008), i-iii (p.iii).

<sup>71</sup> Ibid.

<sup>72</sup> Ibid.

neural implantation provides the model for that structure of feeling in society and culture.

Fernando Vidal and Francisco Ortega's *Being Brains* further examines Vidal's concept of 'brainhood' in society and culture by looking specifically at the representation of brains in fiction. They highlight and critically interrogate the 'deficit model' which is a common trope in analysis of neuroscience and fiction seeking to highlight and correct scientific inconsistencies. They argue for the use of fiction's inherent 'ambivalence' and contradiction, stating it is here that this type of fiction finds and makes meaning, maintaining also that in this type, unlike science, 'univocal answers are not available' precisely because of the contradictory and interpretative nature of fiction.<sup>73</sup> They also offer a critique of Roth's conception of the neuronovel as representing 'privacy without individuality', arguing that 'what may look like solipsism serves mainly to problematize the notion of the human as the cerebral subject'.<sup>74</sup> This is a compelling argument; however, whilst presenting a useful overview of some types of cognitive difference in fiction, their work is weakened by a lack of sustained literary analysis. In what is essentially a whistle-stop tour of neuroscience and neurological disorders in narrative, it is hard to grasp how the specificity of fictional narrative tackles the potential solipsism of the neural subject, nor how its contradictions work to enable possible alternative models of meaning making. This thesis responds to the absence of close literary analysis in their work by developing sustained readings of the ways in which the figures of the enhanced

---

<sup>73</sup> Fernando Vidal and Francisco Ortega, *Being Brains: Making the Cerebral Subject* (New York: Fordham University Press, 2017), p.191.

<sup>74</sup> Roth, 'The Rise of the Neuronovel'; Vidal and Ortega, *Being Brains*, p.194.



human, the autist, and the person with dementia are written into contemporary cultural texts. This involves a consideration of the mediation of neuroscientific discourse in these texts, paying close attention to style, language, form and genre in order fully to understand how these texts reflect upon dominant medical models through my framework of the neural implantation.

Jason Tougaw's 2018 *The Elusive Brain* provides the most thorough account to date of the way in which fiction mediates neuroscientific concepts. Like Vidal and Ortega, Tougaw emphasises the inherent contradictions of narrative, arguing they allow for the exploration of subjectivities of brain and cognitive difference. In his words: 'if writers of brain memoirs and neuronovels can tell us anything, it's that mystery defines the epistemology of relation between brain and self; and where you find mystery, you'll find contradiction too'.<sup>75</sup> Tougaw also focusses some of his literary analysis on detective fiction, arguing that 'neuronovels build on detective fiction's speculative tendencies, weaving the hypothetical questions about the physiological self into the mysteries of their plots; neuronovels narrated by neurodivergent characters plot the social stakes of these questions and give fictional form to tensions between medical diagnosis and identity, without resolving those tensions'.<sup>76</sup> This appraisal of detective fiction is something I want to develop and extend through a close reading of cognitive difference in contemporary crime fiction. This thesis contributes and extends Tougaw's work on detective fiction with a thorough examination of how diverse forms of the genre such as thrillers, courtroom

---

<sup>75</sup> Jason Tougaw, *The Elusive Brain: Literary Experiments in the Age of Neuroscience*, (New Haven, Yale University Press, 2018), p.11.

<sup>76</sup> *Ibid.* p.132.

dramas, and mysteries can elucidate the ontological shifts various neural implantations produce.

### Neuromodels and Neuronovels – Emerging Tensions?

Medicine, neuroscience, and diagnosis have come to be characterized by a belief that their models of practice are objective, ahistorical, and general. Objective in that brain diseases, disorders, syndromes, and conditions are predicated on quantifiable material differences or clinically grouped symptoms which could, theoretically, occur in any brain, and which are diagnosed solely on the basis of these material differences and symptoms. Ahistorical in the sense that, even if the diagnostic category was not articulated, the particular cluster of symptoms appear to exist throughout history and are exempt from socio-political interference. This is why phrases such as ‘we didn’t have a name for it back then’ follows talk of Alzheimer’s, or how various contemporary classifications are attributed to historical figures, such as the retrospective diagnosis of OCD in John Locke, or autism in Michelangelo.<sup>77</sup> These are ahistorical also in the sense Jonathan Metzl uses in his genealogy of Prozac to refer to the way in which diagnoses are primarily concerned with present symptomology, and are largely treated on the basis of such, as opposed to personal (psychological) history or trauma.<sup>78</sup> They are general inasmuch as diagnoses flatten out the particularities of diverse symptoms into a unifying category, whereby racing heartrate, loss of concentration, dread, and dry mouth become anxiety. These

---

<sup>77</sup> ‘The History of OCD’, *OCD UK*, <<https://www.ocduk.org/ocd/history-of-ocd/>> [accessed 9 September 2019]; James Burleigh, ‘Was Michelangelo’s autistic genius a symptom of autism?’, *Independent*, 1 June 2004, <<https://www.independent.co.uk/news/uk/this-britain/was-michelangelos-artistic-genius-a-symptom-of-autism-756718.html>> [accessed 9 September 2019].

<sup>78</sup> Jonathan Metzl, *Prozac on the Couch*, p.31.

aspects imbue diagnostic medicine with a crucial image of being non-discriminatory; material aberrance or difference in the brain that cause these grouped symptoms are chances of birth, developed tumours, or 'chemical imbalances'. As depicted in Fiona Phillips' Damascene reaction to the pictorial 'evidence' provided by the brain scans with which I opened this thesis, these key attributes of medicine and science lend credence to the notion that neuromedical models and their claims to scientific objectivity are important because they collocate with the popular belief that neuroscience is a superior form of knowledge compared to cultural or narrative models and explanations.

Cultural narrative models of selfhood often, in contrast, concern the enmeshed nature of things as embodied by a person or character existing in a particular place and time. In narrative fiction character formation occurs as an aggregate of contextual circumstances, personality/character development, contingent events, social interaction, metaphor, history, biopolitics, the law, overarching plotting and so on. It is these disparate factors that in combination make a character or person act or be a particular way. Unlike medical diagnosis, cultural narrative self-construction is not ahistorical, but contingent upon specific events and contexts. In *Liminal Lives* Susan Squier foregrounds this distinction along objective/subjective lines: 'science functions as the site of the construction of the *objectively known other*, while literature is the site of the construction of the *subjectively known self*'.<sup>79</sup> Squier details the traditional distinction drawn between these two epistemologies of meaning making in terms of constructions of the self.

---

<sup>79</sup> Susan Merrill Squier, *Liminal Lives: Imagining the Human at the Frontiers of Biomedicine* (Durham NC: Duke University Press, 2004), p.29.

Science and medicine measure and study properties to construct objects – for the purposes of this thesis, categories of brain and cognitive difference; whereas culture reflects contingent experience, history, and character to produce largely subjective accounts.

Squier rightly notes, as my critical foundation in Foucault's perverse implantation attests, that this distinction is imperfect. Science and medicine play significant roles in the disciplinary production of Foucault's subjects, much as they are foundational to neural implantations. However, considering these differences in such a way is useful for understanding their interaction. For, the generalising method of medical diagnosis will flatten out the circumstances, personal history, and psychological trauma that produces symptoms into a particular disease, disorder, syndrome or condition. Symptoms that you thought were about being a unique person or character in a particular time and place is in fact this widely attributable brain difference: Stone's identification of the shift to the chemistry and physics of the general soul.

Take for example the following passages from Elizabeth Wurtzel's memoir about her clinical depression, *Prozac Nation*:

So I mention the family history of depression to every new therapist when it finally occurs to me, and they always feel obligated to point out the genetic component of mental illness. But then I'll tell them a little bit about my immediate family background, and sooner or later, as the narrative continues, they're sure to say something like, *No wonder you're so depressed*, like it's the most obvious response. They react as if my family situation was particularly alarming and troublesome, as opposed to what it actually is in this day and age: perfectly normal. I mean, I think about my development and I feel like a Census

Bureau statistic or some sort of case study on the changing nature of the American family in the late twentieth century.<sup>80</sup>

The particulars of what has driven this or that person to Zoloft, Paxil, or Prozac, or the reasons that some other person believes herself to be suffering from a major depression, seem less significant than the simple fact of it. To ask anyone how he happened to fall into a state of despair always involves new variations of the same myriad mix of family history.<sup>81</sup>

These two quotations appear on consecutive pages and encapsulate the remarkable changes to self-construction medical diagnosis can effect in narrative. In the first, Wurtzel describes the immediate inclination of her multiple therapists to flatten out the particularities of her unique selfhood through a 'genetic component' upon learning about her family's medical history. Of course, certain mental illnesses do statistically run in families, but this immediately separates the depression from Elizabeth as a self and into a more ahistorical heritable prospect. However, upon detailing her own 'narrative' and subjective history that seem pertinent to her depression, a tension between the cultural narrative model and the medical model emerges and individuality and subjective history begins taking explanatory precedence. However, Wurtzel adds a further biopolitical layer in that the particularities of her situation are extrapolated, not only into family history or a general medical diagnosis, but into an ever more generalising biopolitical census statistic of the American family. In the second quotation the diagnostic model gains further influence. The 'particulars' I note as being indicative to narrative understandings of subjectivity become secondary to 'the simple fact of' depression.

---

<sup>80</sup> Elizabeth Wurtzel, *Prozac Nation: Young and Depressed in America a Memoir* (London: Quartet Books, 2001), p.29.

<sup>81</sup> *Ibid.* p.30.

A similar situation can be seen in the historical etiological development of conduct disorder across editions of the *Diagnostic and Statistical Manuals of Mental Disorders* (DSM). The *DSM* is a useful historical tool because each new version updates or removes diagnostic labels and criteria in light of new research, symptomology, or prevalence, and changes to the conduct disorder category across the last three volumes encapsulate the neuro-turn's shift from psychosocial to biomaterial explanation. The *DSM-3* lists conduct disorder's predisposing factors as:

parental rejection, inconsistent management with harsh discipline, early institutional living, frequent shifting of parent figures [...] being an illegitimate only child may predispose to the development of the Undersocialized type. Large family size, association with a delinquent subgroup, and an absent father or a father with Alcohol Dependence may predispose to the development of the Socialized type.<sup>82</sup>

The *DSM-4* lists similar environmental factors such as, 'parental rejection and neglect, difficult infant temperament, inconsistent child-rearing practices with harsh discipline, physical or sexual abuse, lack of supervision, early institutional living, frequent changes of caregivers, large family size, association with a delinquent peer group, and certain kinds of familial psychopathology'.<sup>83</sup> However, this edition also references material descriptions with 'lower heart rate and lower skin conductance [being] noted in individuals with Conduct Disorder compared with those without the disorder', with twin studies suggesting that 'Conduct Disorder has both genetic and environmental components'.<sup>84</sup> The *DSM-5* lists similar psychosocial factors with

---

<sup>82</sup> American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders: Third Edition*, (Washington DC: American Psychiatric Association, 1980), p.47.

<sup>83</sup> American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders: Fourth Edition*, (Washington DC: American Psychiatric Association, 1994), p.88.

<sup>84</sup> *Ibid.*; *Ibid.*, p.89.

additions such as ‘neighbourhood exposure to violence’.<sup>85</sup> However, material factors are equally prominent in this latest edition. Most notably, ‘structural and functional differences in brain areas associated with affect regulation and affect processing, particularly frontotemporal-limbic connections involving the brain's ventral prefrontal cortex and amygdala, have been consistently noted in individuals with conduct disorder compared with those without the disorder. However, neuroimaging findings are not diagnostic of the disorder’.<sup>86</sup> Here, a more generalised diagnosis emerges from sub-types of antisocial personality disorder into a label applicable to any child who displays symptoms. What is more, the increasing materiality of the disorder – as being located somewhere in the brain – implants the disorder into the material self rather than its psychological milieu, effacing sociological and psychological factors, history, and environmental influences in light of the neat, objective biological explanation.

Wurtzel’s memoir foregrounds how the tensions between medical and cultural/narratives models of the self play out in literary/narrative form. Indeed, the diagnostic development of conduct disorder shows how material models are becoming equally if not more important than social family history; medical objectivity vies for explanatory dominance over her more messy, unique, life history. In the subsequent chapters, my case studies show these tensions in how medicalised ‘autism’ becomes an ‘objective’ explanatory tool to explain the perception of innumerable atypical behaviours, dementia a depersonalising tool to explain

---

<sup>85</sup> American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders Fifth Edition* (Washington DC: American Psychiatric Association, 2013), p.473.

<sup>86</sup> *Ibid.* p.474.

increasingly diverse facets of old age, and cognitive enhancement a kind of molecular shortcut to promises of the good life.

I conclude this section on cultural narratives with reference to the work of Lennard Davis who notes that the novel (reflective of cultural narrative models of the self) is a form whose historic development is underpinned by normalcy.<sup>87</sup> Indeed, the concept of the norm is essential in effecting perverse and neural implantations and it is certainly true that fictional texts have a historical tendency mimetically to imbibe society and culture's normative paradigms. I do this so as not to ignore the potent ways in which cultural narratives affect and indeed produce neural implantations more generally themselves, in both affirmative and problematic or, to paraphrase Georges Bataille, 'guilty' ways, precisely because it lacks objectivity and contains subjective biases.<sup>88</sup> What is necessary, and what this thesis provides, are readings

---

<sup>87</sup> Lennard Davis, "Normality, Power, and Culture", in *The Disability Studies Reader*, ed. by Lennard Davis (Abingdon: Routledge, 2013), p.10.

<sup>88</sup> Bataille writes 'Literature is not innocent. It is guilty and should admit itself so'. Georges Bataille, *Literature and Evil*, trans. by Alastair Hamilton, (New York: Marion Boyars, 1985), p.x. Consider the problematic role certain texts have played in constructing a deviant model of transgender people. Most famous are Jonathan Demme's *The Silence of the Lambs* (1991) in which the antagonist Buffalo Bill kidnaps and kills women to flay them to create a new identity from their skin, or Iain Banks's *The Wasp Factory* (1984) in which the pathologically violent protagonist Frank is revealed in a twist ending to have been born with a vagina. Though Hannibal Lector is emphatic in his refutation over Bill's trans nature, he does in a way which retains a condemnation of trans subjectivity: '[Bill's] pathology is a thousand times more savage and more terrifying'. The brain and its materiality is central in *The Wasp Factory* and holds an important and decided role in how both Frank and the reader construct his subjectivity. For instance, he explains 'sometimes the thoughts and feelings I had didn't really agree with each other, so I decided I must be lots of different people inside my brain' (77). Later, Frank describes his conflicting emotions as being the vying of biological processes, 'I could almost feel my occipital lobe fusing. I thought of making some smart remark [...] but all the lines to and from my brain seemed to be jammed with urgent messages coming from my guts'. (97). Frank also describes an abject response to food in neurological terms, 'I was going to throw up now, but that same irresponsible, destructive part of my brain – just a few neurons probably, but I supposed there are a few in every brain and it only takes a very small hooligan element to give the rest a bad name – kept thinking about those fried eggs and bacon'. (102). These highlight the biological models of subjectivity in this novel which form a narrative compact between deviance, trans subjects, and the materiality of the brain. *The Silence of the Lambs*, dir. by Jonathan Demme (Orion Pictures, 1991); Iain Banks, *The Wasp Factory* (London: Abacus, 2008).



that challenge these normative assumptions and that challenge the normative ideal of the modern subject as described by Foucault.

### Foucault's Bodies and Subjects

Foucault's elaboration of the concept of biopolitics in his lecture series *Society Must Be Defended* augment his broader analysis of power and the shift from the spectacular visibility of sovereign power to the hidden and internalised mechanisms of disciplinary regimes. For Foucault, the sword symbolises sovereign power because this form of power exercises only as a 'right to kill' or through 'refraining from killing'.<sup>89</sup> The body, and its destruction – or not – through the threat of the sword is central to the expression of this form of power.<sup>90</sup> Though Foucault's work fails to offer a detailed account of historical determination or causality, the transformations from this deductive sovereign power to disciplinary regimes and the democratisation into the sovereign rule of law occur in tandem with industrialisation, and the shift from the absolutist monarchies of the early modern period to the parliamentary sovereignties that emerge following the French revolution.<sup>91</sup> He describes how the decline of absolute sovereign power created a framework of legal powers that

---

<sup>89</sup> Michel Foucault, *The History of Sexuality Volume 1*, p.136.

<sup>90</sup> This is what he describes as the spectacle of power and his vivid description of the public execution of Robert-François Damiens for attempted regicide in the introduction to *Discipline and Punish* encapsulates this form of power. Here, sovereign power is written publicly onto the body of the condemned in order to enact a spectacular display of power. Michel Foucault, *Discipline and Punish: The Birth of the Prison*, trans. by Alan Sheridan, (London: Penguin, 1991), p.3.

<sup>91</sup> Foucault references factors such as the French Revolution across much of his work. However, a thorough investigation into the cause of this shift is never fully considered. It is worth bearing in mind his archaeological and genealogical methodologies in this regard. For instance, in the foreword to *The Order of Things*, Foucault explains how he 'left the problem of causes to one side' choosing 'instead to confine [himself] to describing the transformations themselves', due to the lack of stable and established theories of scientific change and epistemological causality. Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences*, trans. by Alan Sheridan, (London: Routledge, 1997), pp.xii-xiii.

‘allowed the democratization of sovereignty, and the establishment of a public right articulated with collective sovereignty’ around which discipline regulated bodies.<sup>92</sup> Disciplinary regimes operate as ‘micro-physics of power’ and work to control the body through the training of conduct around norms, rather than corporeal punishment for specific crimes.<sup>93</sup>

The disciplinary regime that Foucault describes is encapsulated in the modern penal system. Where sovereign power displays itself through attacks of ‘murderous splendor’, disciplinary powers are hidden and internalised and control through surveillance, normalisation, and the creation of the subject as an individual.<sup>94</sup> For Foucault, the modern, self-surveilling subject is an effect of discipline; power and control thus become hidden, internalised, but omnipresent, typified today in the UK’s expansive CCTV network or the global social media phenomenon. Discipline is a mechanism of power that produces particular effects, one of which is a particular modern notion of the subject as an individual.

In sovereign power the body is the locus of punishment; however, in disciplinary regimes the target is individual subjectivity. Foucault gives the example

---

<sup>92</sup> Michel Foucault, *Society Must Be Defended: Lectures at the Collège De France 1975-1976*, trans. by David Macey, (London: Penguin, 2004), p.37; see also, Foucault, *The History of Sexuality Volume 1*, p.136.

<sup>93</sup> Foucault, *Discipline and Punish*, p.26.

<sup>94</sup> In *Discipline and Punish* Foucault describes three types of discipline crucial in establishing power. First, hierarchical observation, which is a system of monitoring whereby information passes between various levels of authority in order to ensure thorough observation (p. 174). Second, normalising judgements, which is the establishment of societal norms as benchmarks against which people should act (p. 183). Third, examination, which replaces the occasional spectacle of sovereign power with quotidian objectification of the subject through processes of examination (school, hospitals, prisons and so on) creating the idea that subjects are individuals who can be readily compared against each other and the norm (pp.190-1). Jeremy Bentham’s panopticon model is the idealised symbol of this form of organising surveillance because of its efficiency and design in establishing the internalisation of the disciplinary gaze.

of criminal judgement. Sovereign judgement is absolute and is only concerned with establishing that the crime took place. Whereas, disciplinary regimes in which power is hidden and internalised necessitates a judgement not on the crime *prima facie* but on the individual, or what Foucault refers to as the soul. By soul Foucault means 'the heart, the thoughts, the will, the inclinations' behind the act of the crime.<sup>95</sup> In other words, it is no longer the fact of the crime, but the rationale behind it that is judged.<sup>96</sup> New disciplinary forms of power/knowledge such as psychiatry examine criminal provenance and measure the individual against a norm that is itself the effect of descriptions and measures of deviance. Thus, judgements and punishments on souls rather than bodies 'provide the mechanisms of legal punishment with a justifiable hold not only on offences, but on individuals; not only on what they do, but on what they are, will be, may be'.<sup>97</sup> This is important for my thesis because the movement from punishing the body to judging the soul foregrounds the kinds of individualising and normalising effects I explore as neural implantations. Indeed, the 'soul' is the product of disciplinary techniques of power at the centre of which is the self-regulating subject. This leads Foucault to argue that the soul 'is the effect and instrument of a political anatomy; the soul is the prison of the body'.<sup>98</sup> Thus, where Rose argues that mind is what brain does, Foucault argues that soul is what disciplinary power's effects on bodies does.

---

<sup>95</sup> Foucault, *Discipline and Punish*, p.16.

<sup>96</sup> *Ibid.* p.19.

<sup>97</sup> *Ibid.* p.18.

<sup>98</sup> *Ibid.* p.30.

Foucault theorises another form of power, biopower, which emerges alongside disciplinary techniques.<sup>99</sup> Where disciplinary power involves the control of individual bodies through particular institutions and practices, biopower controls populations through the powers of the state. Disciplinary techniques include training and teaching individuals (creating ideas of individualism), whereas techniques of biopower include birth and death rates and concern the securing of the social body as a mass of individuals. Because populations cannot exist without individuals, and individuals are part of the population, Foucault explains that disciplinary techniques and biopower are inherently linked. For Foucault, sexuality encapsulates this linkage because it is both an individual matter and a question of population. Biopower concerns the aggregate of disciplined individuals within a population, and 'aims to establish a sort of homeostasis, not by training individuals, but by achieving an overall equilibrium that protects the security of the whole'.<sup>100</sup> The introduction of biopower marks a shift in Foucault's genealogy of power because where 'sovereignty took life and let live', and discipline sought to regulate individuals, biopower's focus on populations is concerned with 'making live and letting die'.<sup>101</sup> This focus on populations saw the 'growing importance assumed by the norm', norms produced as an effect of the adumbration of differences and exceptions, demarcating the boundaries between deviant and normal, health and illness, and life and death.<sup>102</sup> This concept of biopower, and its interrelation with disciplinary techniques

---

<sup>99</sup> Thomas Lemke notes that for Foucault, disciplinary power was established in the seventeenth century, with biopower complementing it from the middle of the eighteenth century. Thomas Lemke, *Foucault's Analysis of Modern Governmentality: A Critique of Political Reason*, trans. by Erik Butler, (London: Verso, 2019), p.136.

<sup>100</sup> Foucault, *Society Must Be Defended*, p.249.

<sup>101</sup> Ibid. p.247.

<sup>102</sup> Foucault, *History of Sexuality Volume 1*, p.143.

foregrounds much of my work on brain and cognitive difference. In particular regarding the ways differences are simultaneously individualising, but yet also come to represent groups of people that statistically die younger, are indefinitely institutionalised or incarcerated, or who may face racial or gendered prejudice.<sup>103</sup>

Foucault's later work sees the concept of governmentality focus on the power of the state in governing all aspects of life. He asks: 'is it possible to place the modern state in a general technology of power that assured its mutations, development, and functioning? Can we talk of something like a "governmentality" that would be to the state [...] what techniques of discipline were to the penal system, and what biopolitics was to medical institutions?'.<sup>104</sup> In other words, the state's instruments of governmentality produced subjects (as with disciplinary techniques) but through the level of the population (as with biopolitical imperatives). This, as Rose and Abi-

---

<sup>103</sup> Recognising the way neuroscience and diagnostic medicine is entwined with social and cultural scripts such as race and gender is important, not least because they affect diagnosis. I have discussed Prozac's gendering above as well as the way cultural narratives have produced damaging pathologically deviant models of trans subjectivity, and the same is true of race. Metzl has researched schizophrenia's shift from being predominately a housewives' disease in the first half of the twentieth century to its contemporary association with black men. Moreover, I have found a similar pattern in diagnoses of conduct disorder. A 2007 study found that African American children were 2.6 times less likely to receive an autism diagnosis compared to white children on the first medical assessment. Of the children who were initially misdiagnosed, African Americans were twice as likely to receive a diagnosis of conduct disorder than white children (Mandel p.1795). This exists in a history in which African American and Lantinx children who present similar mental disorders are more likely to enter the criminal justice system than their white counterparts who are more likely to receive treatment (Atkins p.202). In other words, there is racial distinction in the neural implantation of conduct disorder: implantation of objective pathology in white children, implantation of criminality via pathology in black and Lantinx children. Regarding this thesis, it is not difficult to conceive that the ontological difference between having a biologically grounded/implanted brain difference causing a proclivity to antisocial behaviour diagnosed in prison compared to a medical facility is ontologically profound. Jonathan Metzl, *The Protest Psychosis: How Schizophrenia Became a Black Disease* (Boston: Beacon Press, 2010); David S. Mandell and others., 'Disparities in Diagnoses Received Prior to a Diagnosis of Autism Spectrum Disorder', *Journal of Autism and Developmental Disorders*, 37.9 (2007), 1795-1802; D. Lanette Atkins and others., 'Mental Health and Incarcerated Youth. I: Prevalence and Nature of Psychopathology', *Journal of Child and Family Studies*, 8.2 (1999), 193-204.

<sup>104</sup> Ibid. p.120.

Rached make clear in their account of the changing governance of anti-social conduct and criminality, is crucial to understanding brain difference in society and culture:

We find arguments that one should minimise a host of social ills, including criminal and antisocial conduct, by governing the child through its family. In each generation, unsurprisingly, these arguments are made on the basis of whatever happens to be the current mode of objectivity about the development of children – habits, the will, instinct theory, psychoanalysis, and today the brain.<sup>105</sup>

Here, conservative political ideologies construct a norm to maintain the importance of the family unit in raising a well-behaved, socialised child. Processes of governmentality feed into much of my research; however, it is in Foucault's discussion of sexuality, as mentioned emblematic of his biopolitical compact of populations and individuals, that this thesis draws its primary foundation.

### The Perverse Implantation

Foucault's description of the perverse implantation offers a conceptual framework through which to understand the subjective effects of contemporary neuroscientific discourses and medical diagnosis and their enmeshing with biopolitical and economic agenda. Grounded in his work on power/knowledge explored above, *The History of Sexuality Volume 1* refutes arguments that the nineteenth century repressed sexualities – the 'repressive hypothesis' – arguing instead that it witnessed a multiplication of atypical sexual discourses in society. Historically, Foucault argues power (religious, legal and so on) focused on the heterosexual couple who were

---

<sup>105</sup> Nikolas Rose and Joelle M. Abi-Rached, *Neuro: The New Brain Sciences and the Management of the Mind* (Princeton, Princeton University Press, 2013), p.196. They also highlight, contra Vidal's 'brainhood', that 'it is not that you have *become* your brain, or that you are identical with your brain, but that you can act on your brain, even if that brain is not directly available to consciousness, and in so acting, you can improve yourself – not as a brain, but as a person', pointing to the modes of self-governing in contemporary neuro-culture. (p.222)

‘under constant surveillance’, whereas other sexual practices such as sodomy ‘remained a good deal more confused’ though the courts could condemn it.<sup>106</sup> Foucault’s account does not offer a clear account of causality or historical change; however, he notes that disciplinary normativity of the eighteenth and nineteenth centuries witnessed an explosion in discourse about atypical sexuality that decentred the legitimate couple ‘with its regular sexuality’ as the primary focus of concern. This regular couple became the norm around which atypical sexualities were identifiable, and as I explained regarding disciplinary models of crime, the act became implanted into the ‘soul’ of the person. In other words, implantations of perversity produce distinct types of subjects and bodies: the punishable (illegal) act of sodomy becomes embodied in (the nature of) the homosexual man.

Foucault is clear that the perverse implantation did not aim to repress or ban, rather to magnify and proliferate for scrutiny, noting four power operations involved in this process. First, it affected the visibility and scrutiny of those implanted. Unlike longstanding taboos such as incest whereby methods to limit or eradicate were directly put to work, child sexuality was implanted as a perversion and proliferated with ever more disciplinary sciences, psychologies, and institutions anxiously coming to bear on this figure of the sexualised child. Second, it affected subjectivity and personhood. The homosexual ‘became a personage, a past, a case history, and a childhood, in addition to being a type of life, a life form, and a morphology, with an indiscreet anatomy and possibly a mysterious physiology’.<sup>107</sup> It ‘was everywhere present in him’ and thus explained all his actions; the mechanics of this power

---

<sup>106</sup> Foucault, *The History of Sexuality Volume 1*, pp.37-8.

<sup>107</sup> *Ibid.* p.43.

worked because ‘it was implanted in bodies, slipped beneath modes of conduct’.<sup>108</sup> Third, because it is ‘imbedded in bodies [...] one had to try to detect it – as a lesion, a dysfunction, or a symptom – in the depths of the organism, or on the surface of the skin, or among all the signs of behavior’.<sup>109</sup> Here Foucault explains a pleasure in the power of examining, as well as, conversely, a pleasure in the power of ‘showing off, scandalizing, or resisting’.<sup>110</sup> Finally, the proliferation of perversions established suspicion within the heteronormative family, focussing attention on ‘the supposed dangers of masturbation, the importance attached to puberty’ and ‘methods of surveillance suggested to parents’.<sup>111</sup> These discursive techniques create what Foucault terms an ‘instrument-effect’, through which there have never ‘existed more centers of power; never more attention manifested and verbalized’.<sup>112</sup> Such mechanisms of power are what underlie much of my work on brain and cognitive difference, because they reveal, as I discuss below, the capacity both to create new kinds of neurological subjects, as well as means to resist aspects of this subjectification from within the categorisation of difference itself.

This discussion of Foucault’s work allows me to foreground some of the critical interventions I propose in the model of the neural implantation. First, he notes that the perverse implantation saw ‘sexual irregularity’ become ‘annexed to mental illness’.<sup>113</sup> As above, this establishes atypical sexuality into medical and pathological epistemology; however, it is also crucial to highlight the corresponding

---

<sup>108</sup> Ibid. pp.43-44.

<sup>109</sup> Ibid. p.44.

<sup>110</sup> Ibid. p.45.

<sup>111</sup> Ibid. p.46.

<sup>112</sup> Ibid. p.49.

<sup>113</sup> Ibid. p.36.



ontological effects this creates, particularly around ideas about guilt and responsibility.<sup>114</sup> Second, Foucault writes explicitly about the confessional aspect of the perverse implantation, in which the person implanted steps forwards and admits who and what he is.<sup>115</sup> This is a crucial point because in producing the homosexual as a distinct type of identity, subjectivity and body, a more active appropriation and identification can take place. In other words, the proclamation and admission of difference enables the formation of a subcultural identity and subjectivity, but only due to the all-encompassing nature of the implantation.<sup>116</sup>

### The Neural Implantation

Critical work on the neuro-turn is increasing; however, it lacks a cohesive framework through which to think about the kinds of ethical questions that contemporary biopolitical discourses about the brain and cognitive difference create. As a result, it often fails to fully acknowledge the impact of this turn upon those who experience the ontological transformations that accompany categorisation and scrutiny of brain

---

<sup>114</sup> Havelock Ellis concludes his 1900 history of homosexuality with a relatively non-judgemental (particularly given the of its time of publication) suggestion for how homosexuals, or 'sexual inverts', should live. Ellis's account is telling of the kind of societal and ontological responsibility homosexuals had to accept. 'The most that the physician is entitled to do, it seems to me, is to present the situation clearly, and leave to the patient a decision for which he must himself accept the responsibility. [...] The invert has the right to sexual indulgence, it may be, but he has also the duty to accept the full responsibility for his own actions, and the necessity to recognize the present attitude of the society he lives in. He cannot be advised to set himself in violent opposition to that society'. Havelock Ellis, *Studies in the Psychology of Sex, Volume 2: Sexual Inversion* (Philadelphia: F. A Davis Co., 1921), pp.342-343.

<sup>115</sup> Foucault, *The History of Sexuality Volume 1*, p.39.

<sup>116</sup> Writing on LGBT groups, Alan Sinfield explains that 'the very contradictions and conflicts that facilitate manipulation of deviant groups by the dominant are also the points at which subordinated cultures find space to assert themselves. The very structures that make it hard for dissidence to escape the dominant also make it hard for the dominant to contain dissidence'. I will show in my case studies of autism and dementia that the same is true for those whose cognitive difference is a source for stigma. Alan Sinfield, *The Wilde Century: Oscar Wilde, Effeminacy and the Queer Moment* (London: Cassell, 1994).

difference as the locus of subjectivity.<sup>117</sup> Responding to this, and taking inspiration from Foucault's perverse implantation, I develop the neural implantation as a way of encapsulating both the disciplinary and biopolitical imperative to classify brain and cognitive difference through the neuromolecular gaze, as well as the ontological and cultural effects categorisations of difference create.

In theorising the neural implantation, I broadly adopt the four power operations Foucault describes as being central to the implantation of perversities, but I look at how these create ontological and epistemological shifts in relation to contemporary society's unique biopolitics and technologies. First, the identification and subsequent implantation of cognitive difference to explain a range of atypical behaviours, responses, actions, and physicality made visible a range of diseases, conditions, syndromes, and disorders. In what Rose and Abi-Rached term the 'lessons from lesions' approach, brain difference becomes the locus and impetus behind a new range of scientific disciplines as well as effecting the formation of a cognitive norm.<sup>118</sup> This marks the neural implantation as a historical shift, reflecting the historical aspect of Vidal's 'brainhood', as well as the various, and famous, literal

---

<sup>117</sup> Work that begins this task includes David Bates and Nima Bassiri's edited collection *Plasticity and Pathology: On the Formation of the Neural Subject*, which places 'plasticity' and 'pathology' in critical dialogue to consider the historical formation of the 'neural subject'. It is an informative history, and as mentioned above Cathy Gere's, and Laura Salisbury and Hannah Proctor's work have informed my understanding of plasticity as a political object. Fernando Vidal and Francisco Ortega's chapter 'Cerebralizing Distress' in *Being Brains: Making the Cerebral Subject* gives a much fuller account of contemporary neurobiological models of 'distress' (they focus on depression and autism) and explore some of the major biopolitical and technological frameworks that support material models of these conditions. However, their approach lacks a framework through which to understand the range of effects diagnoses/categorisations of brain difference creates, as well as the range and remit of neuroscience beyond the remit of pathology, which I consider in terms of cognitive enhancement. There is also a plethora of individual studies, auto-ethnographies, and medical anthropologies on brain and cognitive differences.

<sup>118</sup> Rose and Abi-Rached, *Neuro*, pp.204-206.

lessons from lesions such as the split-brain experiments of the 1960s.<sup>119</sup> This classificatory drive, interest, and scrutiny of brain difference has increased with brain scanning technology and its claims to ever more specific loci of difference. Second, neural implantations produce profound ontological and subjective effects. In regards to autism, atypical behaviours grouped under the umbrella term ‘autism’ can become, once implanted through diagnosis, ‘a past, a case history, and a childhood, in addition to being a type of life, a life form [...] a mysterious physiology’.<sup>120</sup> Talking about the power of the label and narratives of autism, Katherine Runswick-Cole writes, ‘this autism story tells of an all-encompassing label, a narrative lens that accounts for every aspect of my son’s behaviour and personality, so much so that there is nothing left of him that cannot be accounted for without reference to the autism story’.<sup>121</sup> The link to Foucault’s description ‘it was everywhere present in him [...] implanted in bodies, slipped beneath modes of conduct’ is clear.<sup>122</sup>

Third, the power-pleasure interactions Foucault describes in implantations of perversions are similarly evident in identifications of brain and cognitive difference. On the one hand, the ‘pleasure that comes of exercising a power that questions, monitors, watches, spies, searches out’ can be seen throughout the chapters in this thesis, and is typical of the norm’s disciplinary surveillance of difference.<sup>123</sup> On the other hand, ‘power asserting itself in the pleasure of showing off, scandalizing, or

---

<sup>119</sup> Ibid. Rose and Abi-Rached cite Roger Sperry and Michael Gazzaniga’s split brain experiments in which the two hemispheres of the brain were found to function independently as the beginning of contemporary brain centred lessons from lesions.

<sup>120</sup> Foucault, *History of Sexuality Volume 1*, p.43.

<sup>121</sup> Katherine Runswick-Cole, ‘Understanding This *Thing* Called Autism’ in *Re-Thinking Autism: Diagnosis, Identity and Equality*, ed. by. Katherine Runswick-Cole, Rebecca Mallett and Sami Timimi (London: Jessica Kingsley Publishers, 2016), pp.19-30 (p.24).

<sup>122</sup> Foucault, *History of Sexuality Volume 1*, pp.43-44.

<sup>123</sup> Ibid. p.45.

resisting' is evident in the neural implantation through campaigns such as the Neurodiversity movement, Disability Pride events, or in how medical models can be subjective methods for disrupting stigmatising cultural phantoms.<sup>124</sup> Such implantations can in some cases offer a 'neutral' understanding of hitherto 'deviant' behaviours by shifting the blame from personality to pathology, *it's not me, it's my brain*. Simon Cohn argues that material explanations offer a chance to create a different account of what unusual behaviours, actions, and symptoms mean, (positively) disrupting 'existing narratives of illness and experience of selfhood in their everyday lives'.<sup>125</sup> Finally, the proliferation of brain and cognitive difference through medical diagnoses affect those not implanted, as implantations come to represent sites of fascination and anxiety. I detail below how certain expressions of brain difference come to be culturally assimilated and coveted by those within the norm.

Realising the cultural assimilation of neural implantations is crucial for understanding the scope and space brain and cognitive difference occupies today. The lessons from lesions approach is evident here inasmuch as techniques originating from the inspection, measuring, and scanning for atypicality or difference in brains are being used to create biological facts or stories for the trivia of everyday life. Such as in the semi-regular '*this is your brain on X*' revelations emerging in popular

---

<sup>124</sup> Ibid. Neurodiversity refers both to the belief in the biological idea that cognitive difference is a result of natural variation, as well as its more politicised meaning which refers to the Neurodiversity Movement which emerged from the Autism Rights Movement.

<sup>125</sup> Simon Cohn, 'Disrupting Images' in *Critical Neuroscience: A Handbook of the Social and Cultural Contexts of Neuroscience*, ed. by Suparna Choudhury and Jan Slaby, pp.179-193 (p.188); Vidal and Ortega counter this claim, suggesting that by medicalising through material brain difference further barriers/schisms between states of health and illness emerge and that it can also increase the perception that mental illness equates to danger, Vidal and Ortega, *Being Brains*, p.143.

media.<sup>126</sup> Particular effects on those in the norm – by which I broadly mean those considered not to have brain or cognitive difference – establish a kind of appropriation by way of somewhat flippant self-diagnosis of the diseases, conditions, syndromes, and disorders underpinning the diagnostic science of the neural implantation. For instance, discourses of transient chemical imbalances or neural cross-wiring act as explanatory appendages to normative states temporarily off-kilter. It is the discourse of difference without the permanence of implantation. Moreover, speculative appropriations of diagnoses such as *'it's my OCD'* or *'you must be on the spectrum'* by those within the norm act more like neural accessories to an uncontested normative subjectivity that can be worn and removed at will.<sup>127</sup> In other words, dual states of neural accessories and neural implantations emerging from the neuro-turn. However, the flippant adoption or use of such medical categories further impacts the neural implantations from which they derive, not only does it diminish the very real ontological differences such atypicality can create and signify, but also it has the power to stigmatise.<sup>128</sup>

---

<sup>126</sup> See Robert Preidt, 'What TV Binge-Watching Does to Your Brain', *WebMD*, 12 August 2019 <<https://www.webmd.com/brain/news/20190812/what-tv-binge-watching-does-to-your-brain>> [accessed 14 August 2019]; Suzanne Rowan Kelleher, 'This Is Your Brain on Travel', *Forbes*, 28 July 2019 <<https://www.forbes.com/sites/suzannerowankelleher/2019/07/28/this-is-your-brain-on-travel/#1e0c8fb82be6>> [accessed 14 August 2019].

<sup>127</sup> Martyn Pickersgill, Sarah Cunningham and Paul Martin argue 'We can, then, regard the brain not as some magnificent epicentre of subjectivity, but as an object of mundane significance, understood as providing a substrate for, and, in some cases, limiting, everyday life, though often far from salient to the subjective experience'. Although they do consider brain difference, the reference of 'mundane significance' goes toward the 'typical' ability to choose the extent to which one considers oneself a neuro-subject. Martyn Pickersgill, Sarah Cunningham and Paul Martin, 'Constituting neurologic subjects: Neuroscience, subjectivity, and the mundane significance of the brain' *Subjectivity*, 4.3 (2011), 246-365 (pp.361-2).

<sup>128</sup> This similarly occurs in other ontological categories that demarcate difference from the norm – such as how 'gay' became a cultural description for something rubbish or bad. This exists in a long history that sees difference linguistically appropriated for use as a negative descriptor, such as 'dumb', 'lame', 'moron', 'lame', and 'retard', which were all originally medical classifications. 'Autistic' has similarly developed into an adjective which predominantly refers to a lack in emotion or empathy. See for example Australian politician Barry O'Sullivan telling Australian radio that 'banks

The ontological transformations resulting from neural implantations are difficult to overstate, a claim which I explore through my close readings of contemporary cultural narratives. However, as an introduction to the extent of the effects of neural implantations, it is worth considering the political and legal consequences that accompany and influence the ontological changes. For instance, autism is a life-long condition, the diagnosis of which in the UK means that a person can be sectioned or incarcerated, sometimes indefinitely, and prohibits them joining the armed forces.<sup>129</sup> Diagnoses of Alzheimer's, which has become shorthand for a range of dementia diseases, lead to biopolitical questions over life, death, assisted suicide, personal and familial economic problems due to poorly funded social care in the UK, evident from the 2017 uproar over the media-dubbed 'dementia tax', and even the limits of what constitutes personhood.<sup>130</sup> It is true that the neural implantation encompasses a wide-range of brain and cognitive differences; however,

---

show an almost autistic disregard for prudential regulation and law and it's time for these people to have their day in court'. Barry O'Sullivan cited in Peter Ryan, 'Banks show 'disregard' for the law, Government MPs may cross the floor to back inquiry', *ABCNews*, 27 November 2017 <<https://www.abc.net.au/news/2017-11-20/banking-royal-commission-barry-osullivan-disregard-for-law/9167818>> [accessed 13 February 2019].

<sup>129</sup> Such people are detained in Assessment and Treatment Units (ATUs). This detention is underpinned by extensive legal frameworks such as the Human Rights Act (1998) and the Mental Health Act (1983). A House of Commons report on this issue criticised these legal underpinnings, and indeed, legal injunctions carried out against parents who try to fight them. 'It is wholly unacceptable that injunctions should be sought to prevent families from speaking out when they disagree with the way that their child is being treated. The Ministry of Justice must work with other departments to collect data on the number of injunctions sought by public bodies, including Local Authorities and Clinical Commissioning Groups, against families of those with learning disabilities and/or autism'. House of Commons Joint Committee on Human Rights, 'The detention of young people with learning disabilities and/or autism', 1 November 2019, p.31.

<sup>130</sup> Theresa May's social care reform ahead of the 2017 general election proposed that people living with dementia would have to pay for their care up to a limit of £100000. This amount included property. Facing incredibly media and public backlash, May promptly u-turned and clarified that a cap would be agreed. Anushka Asthana and Jessica Elgot, 'Theresa May ditches manifesto plan with 'dementia tax' U-turn', *Guardian*, 22 May 2017 <<https://www.theguardian.com/society/2017/may/22/theresa-may-u-turn-on-dementia-tax-cap-social-care-conservative-manifesto>> [accessed 19 February 2019].

such a holistic formulation is critical in highlighting the pervasiveness and range of biopolitical, legal, and ontological effects implantations create.

In summary, the identification and description of the neural implantation offers a framework through which to think about a range of brain and cognitive differences and the changes accompanying them. Many of these result from the medical model that reduces a range of cognitive differences into pathological categories of behaviour and personality. However, central is that implantation of difference into the body, personhood, and subjectivity occurs at a neuro-molecular level. This is a key difference to the perverse implantation where Foucault vaguely discusses medical institutions in relation to 'mysterious physiology'. Neural implantations are underpinned by truth claims made in relation to purported differences in specific areas of the brain. This is despite the fact that, as Rose and Abi-Rached note, 'each of the pathways that neuropsychiatry has attempted to trace through the brain seems to run, not into the bright uplands of clarity, but into the murky, damp, misty, and mysterious forests of uncertainty'.<sup>131</sup> With two lots of 'mysterious' biology it would be convenient to argue that brain scans captioned 'schizophrenic' or 'depressed' are technologically advanced, neo-Victorian facsimiles of the photographs Jean-Martin Charcot produced at the Salpêtrière, but to do so misses the point.<sup>132</sup> Whether or not material bases are real or phantom does not

---

<sup>131</sup> Rose and Abi-Rached, *Neuro*, p.130.

<sup>132</sup> See, Georges Didi-Huberman, *Invention of Hysteria: Charcot and the Photographic Iconography of the Salpêtrière*, trans. by Alisa Hartz (Cambridge MA: The MIT Press, 2003).

really impinge on neural implantations because they contain and produce powerful disciplinary and biopolitical truth claims nonetheless.<sup>133</sup>

I argue that biopolitical imperatives and disciplinary techniques are central to the emergence of the neural implantation. Through the lessons from lesions approach, brain difference produces the norm and subsequently exists aside from it through disciplinary mechanisms of normalisation and surveillance. The neuro-turn in culture and society sees us become fascinated, anxious, and self-accessorising over the working, mis-working, and potential of the brain, typified by the introductory Fiona Phillips' quotation. Thus, while neural implantations are an inherently individualising event, everybody shares in the power of the neural implantation because we collectively speculate, regulate, and recognise brain difference. Moreover, neural implantations are governed, and indeed govern. State services centre around the brain as the locus for a host of social ills, biotechnology firms regale its potential for enhancing 'useful' difference, the law decides on right-to-die cases, and we self-govern our brains to either prevent, navigate, or produce brain and cognitive difference. For those with cognitive difference, implantation refers to more than atypical cognition, lived experience, or subjectivity. As mentioned, the decreased life expectancy for autistic people stems from systemic ableism, poverty, poor education, and under funding of resources. Moreover, the medical and pathological gaze bound to and underpinning implantations reduces the uniqueness

---

<sup>133</sup>In his medical history of the PET scan Joseph Dumit puts this kind of disciplinary power down to the familiarity of the imagery. He writes: 'the visuality of these images, their apparent familiarity and their transparency with regard to the brain all contribute to the potency of PET claims' (p.58). Extrapolating this into the model of the neural implantation, it does not so much matter whether the science is correct, more just that it seems to be. Joseph Dumit, *Picturing Personhood: Brain Scans and Biomedical Identity* (Princeton: Princeton University Press, 2004).



of individual subjectivity – effecting a flattening of those implanted into the neural phantom narratives associated with their diagnoses. This is what I refer to when I talk of a contemporary biopolitics of the brain and cognitive difference.

With this in mind, it is imperative that other narratives prioritizing personhood and subjectivity over strictly biomedical models are written and scrutinised. This is why, existing in the neural implantation, is the space to resist and evade the neuromolecular gaze and its biopolitical imperatives, and a vitalising and life affirming pleasure in such reclamation and re-subjectification. It is because the neural implantation represents more than an epistemological model of pathology or difference, because it is also an ontological process of subjectification, because of its conjunction with, and formation from, cultural scripts, phantoms of the brain, economisation, and ideology that there is scope for re-definition and affirmative agency from within the implantation itself. Not through Malabou’s abstract plastic model of metamorphosis, but through particular discursive and cultural shifts. It is for this reason that I consider how the properties of crime fiction (across a range of media) can work to help us all think differently about brain and cognitive difference.

### Neuro-Crime Fiction<sup>134</sup>

Crime fiction has a rich history of this interdisciplinary dialogue given the historical development of the genre correlates with developments in the biopolitical compact between medical and legal establishments, and the state.<sup>135</sup> For instance, D. A

---

<sup>134</sup> Parts of this section have been published elsewhere; Spencer Meeks, ‘Neuro-Crime Fiction: Detecting Cognitive Difference’, in *Crime Fiction Studies*, 1.1 (2020), 79-95.

<sup>135</sup> See Lucy Burke, ‘Genetics at the Scene of the Crime: DeCODING *Tainted Blood*’, in *Journal of Literary and Cultural Disability Studies*, 6.2 (2012), 193-208 (p.200).

Miller's influential reading of the police in Victorian novels highlights the intersection of Foucauldian disciplinary powers within the form and themes of the novel. His central thesis is that police power is elided in the narratives, not by the absence of the police, but because their disciplinary powers have become internalised into the plot.<sup>136</sup> Ronald Thomas similarly argues that detective fiction developed alongside the modern police force and the bureaucratic state.<sup>137</sup> He looks specifically at then new techniques of analysing and detecting the body (fingerprinting, profiling, and photography) to argue that they are specifically readerly techniques. This move allows Thomas to link the rise of the literary detective with the rise of new detective technology, in his words, such techniques 'convert the body into a text to be read'.<sup>138</sup> This is important, he explains, because despite their claims to objectivity, these techniques are inherently politicised in the texts, in which deployment often detects colonial or racial otherness. Thomas' is a useful model in linking the figure of the detective – bearing in mind Miller's emphasis on internalisation of the detection – to the biopolitics of the social body. It thus provides a critical foundation for the ways I employ crime fiction to explicate the effects of neural implantations. Moreover, while indebted to Miller, Thomas's move is to re-align the power structures in the novel, arguing that Miller's figuration of the novel is too conservative in positing its discursive networks as 'too singular and monolithic an ideological force'.<sup>139</sup> In other words, Miller's reading holds internalised disciplinary surveillance as a *fait accompli*;

---

<sup>136</sup> D. A. Miller, *The Novel and the Police* (Berkeley: University of California Press, 1988), p.43.

<sup>137</sup> Ronald Thomas, *Detective Fiction and the Rise of Forensic Science* (Cambridge: Cambridge University Press, 2004), p.4.

<sup>138</sup> *Ibid.*

<sup>139</sup> *Ibid.* p.14.

however, Thomas suggests that detective fiction both reinforces and resists the power structures that are integral to it.

Like the neural implantation, the crime genre's development depends on the construction and critique of the norm. Reading Lennard Davis and William Greenslade, Burke simultaneously ties the genre's early thematic fascination with 'spectacular physiological markers' of criminality to the eugenicist works of Cesare Lombroso, as well as highlighting the form's dependence 'on the formation of a concept of normalcy and its putative relationship to law, order, and social acceptability'.<sup>140</sup> In other words, the lessons from lesions approach adopted by Lombroso identified physical markers of *deviance*, which embedded into the structure of early detective novels to become the hunt for the 'scientifically' corroborated deviant. Yet, like Thomas, Burke maintains that this does not preclude an ideological critique of the very norms that it imbues, because to do so 'fails to capture the ways in which generic conventions are expressed, manipulated, and played with' in regards to challenging normative assumptions.<sup>141</sup> This is what Heather Worthington notes as being the genre's ability to 'bring clearly into view the structures of power in society and the ideologies that promulgate and support' such normative structures.<sup>142</sup> I extend this theoretical vein by highlighting how the nineteenth century disciplinary and biopolitical shifts that informed Foucault's description of the perverse implantation were similarly foundational to the crime genre's evolution. I argue that where Foucault describes the proliferation of perverse

---

<sup>140</sup> Burke, 'Genetics at the Scene of the Crime', p.200; Lennard Davis, *Enforcing Normalcy: Disability, Deafness, and the Body* (London: Verso, 1995); William P. Greenslade, *Degeneration, Culture, and the Novel: 1880-1940* (Cambridge: Cambridge University Press, 1994).

<sup>141</sup> Burke, 'Genetics at the scene of the Crime', p.200.

<sup>142</sup> Heather Worthington, *Key Concepts in Crime Fiction* (New York: Palgrave Macmillan, 2011), p.x.

or deviant categories in the nineteenth century, the same multiplicity is true for the kinds of subjects and plots crime fiction became invested in. Indeed, as I have argued elsewhere 'crime fiction continues to develop alongside medicine, science, and technology and its texts are important tools for analysing and critiquing hegemonic biopolitical imperatives and the scientific truth claims underpinning them'.<sup>143</sup>

For instance, it is possible to broadly trace the neuro-turn's influence on some of the forms and interests of the genre, particularly in regard to the 'psychological thriller'. On the development from Victorian and golden age generic bourgeois anxieties over household property, Worthington notes that 'over the twentieth century, the threat to property has become more personal, and what is now at stake in many crime fiction novels is the ultimate property, that is, the self'.<sup>144</sup> This is undoubtedly due to the influence of psychology and psychoanalysis in society and culture over the twentieth century.<sup>145</sup> However, as argued, the neuro-turn has seen contemporary models of subjectivity and personhood become increasingly indivisible from the models emerging from neuroscience. Lee Horsley writes that the serial killer sub-genre most closely reflects the trauma culture that dominated the late twentieth-century and opened 'our gaze [to] the wounded psyche of the killer whose aberrations are expressed in the wounds he inflicts on others'.<sup>146</sup>

---

<sup>143</sup> Meeks, p.81.

<sup>144</sup> Worthington, p.xxii.

<sup>145</sup> Jan De Vos uses 'psychologization' to refer to psychology's influence throughout the twentieth century and its role in forming the subject of late modernity. Similarly, Adam Curtis's documentary *The Century of the Self* (2002) depicts the extent to which Freud's theories shaped the twentieth century. Jan De Vos, *Psychologization and the Subject of Late Modernity* (London: Palgrave Macmillan, 2013); *The Century of the Self* prod. by Adam Curtis, BBC (2002).

<sup>146</sup> Lee Horsley, *Twentieth Century Crime Fiction* (Oxford: Oxford University Press, 2005), p.118.

I argue that 'what is now at stake' in some contemporary crime fiction is not only the self, but more specifically, the self which is located at the site of the brain and its processes. Thus, I augment and update Horsley's work by arguing it is decreasingly the 'wounded psyche' of the serial killer that forms the catalytic basis of such thriller narratives and increasingly differences in the brain. I posit that in crime fiction today, a shift from 'psychological' to 'neurological' thrillers is emerging as a result of the neural implantation, in which criminal action or intent arise from brain difference rather than wounded psyches. In other words, psychological (often traumatic) history is displaced as the catalyst of crime, with material differences, diseases, or disorders as its replacement. This is both profoundly disturbing – it could, like a tumour, happen to anybody – but also neutralising in its inherent ambivalence – it really could, like a tumour, happen to anybody. The neurological thriller is one of the main crime narrative forms to have emerged amongst the neuro-turn and are closely analysed in the rest of this thesis alongside detective/mystery narratives and courtroom dramas.

It is for this reason that I coin this emerging sub-genre 'neuro-crime' fiction. As an extension to the neuronovel criticism reviewed above that demarcates the shift in fiction, particularly literary fiction, to the kinds of models and explanations of the self that encapsulate the neuro-turn, I highlight a similar shift in crime fiction. In its most simple terms, much recent crime fiction 'celebrates, adapts, and critiques neuroscientific discourse'.<sup>147</sup> Above I outline how the genre has and continues to evolve alongside biopolitical shifts; however, it is worth noting that this is not

---

<sup>147</sup> Meeks, 'Neuro-Crime Fiction', p.81.

epistemologically unidirectional. As I have argued elsewhere, popular neurological case histories have strong ties to the form of detective fiction and find their popular genesis in the psychoanalytic studies of Josef Breuer and Sigmund Freud; their presentation of an initial neurosis and the subsequent explanation mirrors the contemporary form of Arthur Conan Doyle's *The Adventures of Sherlock Holmes*.<sup>148</sup> This is important because it highlights how the two epistemologies are in a 'symbiotic relationship [...] in which the particularities of the genre are employed by science while science influences the forms of crime fiction', fostering the kind of critically interactive praxis I adopt in the following chapters.<sup>149</sup>

As I note, neural implantations create powerful biopolitical and ontological subjective effects (lower life expectancy/implanted and internalised feelings of otherness), as well as implanting radical opportunities to resist these. It is worth highlighting Peter Messent's assessment of crime fiction which, I argue, mirrors this model of simultaneous normalising subjectification and atypical resistance; crime fiction can 'protect and sustain the social order but [...] can also (often, paradoxically, at one and the same time) work in a more radical and challenging way'.<sup>150</sup> This generic ambivalence is important because, in much the same way that brain and cognitive difference implants into brains, bodies, and subjectivities, I argue that they implant into contemporary neuro-crime fiction. This thesis will show how the very

---

<sup>148</sup> Ibid. pp.81-2. I also extend this argument by looking at the Abigail Marsh's *Good for Nothing*, which continues this adoption of the forms and style of the crime genre.

<sup>149</sup> Ibid. In the article I outline both how crime fiction has developed alongside neuroscience, but also how neuroscientific writing has been influenced by the properties and style of crime fiction.

<sup>150</sup> Peter Messent, *The Crime Fiction Handbook* (Chichester: Wiley-Blackwell, 2013), p.12. Many crime fiction scholars echo this. See also Lee Horsley, *Twentieth Century Crime Fiction* (Oxford: Oxford University Press, 2005), p.158; Worthington, *Key Concepts in Crime Fiction*, p.ix; Nicole Rafter, *Shots in the Mirror: Crime Films and Society* (Oxford: Oxford University Press, 2006), p.13.

structures and conventions of the genre can develop because of their assimilation with neuroscience, as well as how they are sites to resist the medical model. Quite simply, as ontologies and subjectivities transform in individuals because of the biopolitics of implantations, the same biopolitics can see the bodies of these texts similarly transform, which can then be put to work to critique the biopolitical imperatives themselves.

It is important to foreground that the texts I consider are from the Global North, namely the USA, UK, Australia, and Sweden. The main reason for this is that the neural implantation is generally a Global North phenomenon. This is not to say that these kinds of ontological and epistemological implantations of difference are exclusive to more economically developed countries, indeed by their nature these kinds of brain and cognitive difference are meant to be universal. Indeed, China Mills makes it clear that there is an expansive global drive from the World Health Organisation to diagnose mental illness and distress to close the gap between mental and physical health, leading to a scaling up of neurological diagnoses.<sup>151</sup> The tool they use is the 'Mental Health Gap Action Programme' (mhGAP), and is employed in local situations as a ready reckoner for diagnosing neurological illness. However, Mills' criticism is linguistic, explaining 'distress', one of mhGAP's symptoms for emotional disorders, means different things to different peoples and cultures. Its appropriation in different contexts can further a pathologising "top down" approach that reasserts colonial assumptions about Western expertise and superiority'.<sup>152</sup> This is precisely

---

<sup>151</sup> China Mills, 'From 'Invisible Problem' to Global Priority: The Inclusion of Mental Health in the Sustainable Development Goals', *Development and Change*, 49.3 (2018), 843-866.

<sup>152</sup> *Ibid.* p.851.

the problem. This is not to say that the Global North embodies a unified response to the neural implantation. Any glib assumption of homogeneity is belied by very different types of national or individual health care systems, and different cultural understandings of difference or illness. It is, however, to say that institutional and biotechnological imperatives underpinning neural implantations have become fairly cohesive in the Global North.

Rose and Abi-Rached document the historical differences between US, UK, and French development of neuroscience, but maintain the neuromolecular gaze now represents ‘a common vision of life itself’.<sup>153</sup> In 2013 the European Union and USA respectively launched the European Human Brain Project (HBP) and the BRAIN Initiative. Both share nearly identical research goals and a common ethical vision. The HBP will ‘ensure that the HBP’s work is undertaken responsibly and that it benefits society’, with BRAIN noting: ‘although brain research entails ethical issues that are common to other areas of biomedical science, it entails special ethical considerations as well. Because the brain gives rise to consciousness, our innermost thoughts and our most basic human needs, mechanistic studies of the brain have already resulted in new social and ethical questions’.<sup>154</sup> Moreover, the West, and America in particular, has a more defined cultural and medical history of psychology and psychiatry. In other words, for much of the Global North, a recognizable history of psychological differences has become, following the neuro-turn, an implantation of neurological differences. The epistemological and ontological effects may be

---

<sup>153</sup> Rose and Abi-Rached, ‘The Birth of the Neuromolecular Gaze’, p.13.

<sup>154</sup> ‘Overview’, *Human Brain Project* online

<<https://www.humanbrainproject.eu/en/science/overview/>> [accessed 18 February 2019];

‘Neuroethics Working Group’, *The BRAIN Initiative* online

<<https://www.braininitiative.nih.gov/about/neuroethics.htm>> [accessed 18 February 2019].



profound, but the relative ease at which they assimilate into society and culture is, I argue, in part due to the cultural interest and fascination with the mind in the twentieth century. This can be seen in the various psychological phantoms of enhancement, autism, and dementia with which crime narratives interact.

The fictional crime forms I consider, detective, mystery, thriller, and courtroom drama are ubiquitous and often formulaic. By manipulating these latent expectations, the expectations and associations of cognitive difference can also be subverted. For example, that crime fiction is itself guilty of perpetuating and fabricating stereotypes of brain and cognitive difference is undeniable; a whole range of brain and cognitive difference has been used as a symbolic shorthand for criminality and evil. However, more recently, as explored in chapters two and three, brain difference does not constitute criminality as such, rather it associates with it and in doing so exposes ethical and legal schisms between normative and difference models of brain function. In such cases, brain difference become associations or objects that drive and produce criminal acts or investigation precisely because of the nature of atypicality itself. In other words, the atypical person does not commit a crime, but becomes a catalyst because of their unique neurobiology. This situates brain difference outside the commission of a crime, but inside the biopolitical structures that investigate crime. In doing so, comparisons can be drawn between the criminal operations of the law, society, science and medicine, and their similarities to the disciplinary techniques involved with neural implantations. In other words, that the stakes inherent to crime fiction are so precarious (guilty/innocent, legal/illegal) exposes the precarity of the biopolitical stakes involved in the neural implantation. For better or worse, through nuance or stereotype, in neuro-crime

fiction the difference and biopolitical underpinnings are the driving focus of study, investigation, and fascination, highlighting the ways in which difference is 'handled' and understood in culture more generally. What I identify in such crime fiction is both its emergence as a means for those non-implemented to understand, self-accessorise, probe, and surveil the social and cultural anxieties developing from the neural implantation, and conversely, an ideological critique of these normative anxieties and fascinations and a space for resistance and re-subjectification. This generic ability can be seen in an overview of the arguments I make across the following three chapters of the thesis.

### Chapter Summaries

Chapter one looks at how cognitive enhancement, the idea that neurotechnology and pharmaceuticals can 'increase' the brain's functional power, translates into society and culture. It takes as its starting point that these are promissory technologies that represent progress, at either an individual level or at a species level with the idea of trans- or posthuman futures. I respectively explore these through close readings of the film *Limitless* (Neil Burger, 2011) and Ramez Naam's novel *Nexus* (2012). I argue that both texts establish neural implantations of enhanced subjectivity via the ingestion of a pharmaceutical pill and come to reflect different aspects of an 'idealised' brain and cognitive state representative of improvements to normality. Coupled with the real neuroscience and technology from which it takes its inspiration, it is this imagined notion of 'going beyond' the norm which demarcates the enhanced subject as an effect of neural implantation and which is paramount in understanding the meaning produced in these texts. To contextualize, the chapter

offers a timeline of enhancement fiction to explain how these have developed from a biopolitical focus on normalization, to this recent turn that sees the normal enhanced into a kind of 'ideal'. It then makes an important intervention by differentiating between types of thrillers, explaining the difference between 'neuro-thrillers' that focus on technology and 'neurological thrillers' that focus on pathologized states of difference.

The reading of *Limitless* is reflective of the way neuroscientific epistemologies have become entwined with neoliberal biopolitics as detailed above. It focusses on Eddie, a middle-aged white man who is given an experimental drug that causes his cognitive functioning dramatically to increase. I argue that Eddie's subjectivity and the film imbibe a neoliberal version of enhancement at both a neuro-molecular and narrative level. I develop the concept of a 'plastic narrative' – making reference to the above criticism of Malabou's plasticity – to reflect the link between Pitts-Taylor's description of the plastic brain's 'need for newness' with Eddie's metamorphic narrative and the film's seeming inability to come to a full stop. It highlights both the endemic nature of crime in the film and the playful tone in which Eddie's criminal activity is rendered to mount not only a critique of this individual and neoliberal notion of enhancement, but, read otherwise, a reflection of the fatigue towards neoliberal narratives as reflective in the emergence of populist discourses today.

I subsequently consider *Nexus*, a novel similarly about the promise of enhancement but here imagined as 'improving' at a social or species wide level with dominant posthuman themes. The novel continues *Limitless's* work by explicating the kind of biopolitics and ideologies involved when enhancement becomes a much

more quotidian technology. In this imagined future, conservative and populist US politics restrict the use of neuroscience and prohibit use of the drug, whereas China and the East more generally are imagined as much more liberal in their view of neurotechnology. Underpinned by Fredric Jameson's work on utopia, it seeks to understand what this text tells us about enhanced subjectivity and the material present. Its oscillation between utopia and dystopia establishes a cautiously hopeful ending; however, I argue the drug's 'progressive' aims of either increasing human empathy or as an evolutionary step-forward ultimately prove themselves to be siren calls whereby any attempt to enhance into a more collective/social future in fact only exacerbate the kind of hierarchical and prejudicial problems people with cognitive difference experience today.

Chapter two focusses on social and cultural perceptions of autism as a category and considers the kinds of neural implantations and subjects emerging alongside contemporary biopolitical imperatives. It begins with reference to the literary critic Stuart Murray whose seminal 2008 work on autistic representation sought to analyze the most meaningful and culturally resonant depictions of autism. I focus particularly on his notion of the 'autism event' by which he means cultural texts that have most impacted upon how we think about autism. These include Mark Haddon's *The Curious Incident of the Dog in the Night-Time* (2003) and cultural legacies of the figuration of the autist as idiot-savant.<sup>155</sup> I make a critical intervention by updating Murray through a sustained media analysis showing that the poles of representation have further refined from the idiot-savant paradigm into figurations

---

<sup>155</sup> Stuart Murray, *Representing Autism: Culture, Narrative, Fascination*, (Liverpool: Liverpool University Press, 2008), pp. 12-13.

of the 'autistic shooter' and the 'autistic hacker'. These contemporary figures emerge from the autistic phantoms of the brain that Murray analyses, and represent the complicated and prejudicial poles that autistic representation inhabits: violent and suspicious, and atypically brilliant. Online comments on the media articles play out like an open court in which autism is being tried; thus, the chapter looks at the conventions of courtroom dramas to look at the discrepancy between how real and fictional law comes to bear on autistic subjectivity to highlight how the fictional court can be a site for subjective or discursive resistance to imputation prejudice.

Looking first at Jodi Picoult's *House Rules* (2010) as exemplary of the autistic shooter paradigm, it highlights how autistic subjectivity is given little agency, and describes the novel as a 'feel bad' narrative in which the court's portrayal of autism as either a signifier of insanity or pathological violence elicits an ethical response from the reader. Ultimately, I argue this feel-bad narrative forces the biopolitical imperatives surrounding autism and its implantations to take the stand and answer for the ways in which autistic subjects are often dominated or othered in society. The chapter shifts to representations of the hacker, a figure imbued with much more agency and dynamism. It first considers Lisbeth Salander from Stieg Larsson's *Millennium* series (2007-09 in English translation) whose autism is celebrated as a mode of subjective agency and escape in the face of biopolitical state mechanisms that seek to control her. Autism here is not guilty, but vital, in terms of both life and plotting. Salander is the hero whose autistic expression not only saves herself and her friends, but which also creates a kind of techno-hacking nemesis against the global hubris of political power and greed. The chapter concludes with a close reading of the Australian television series *The Code* (2014-16), in which Jesse Banks, an

autistic hacker on license, finds himself embroiled in a government coverup. The narrative establishes the viewer in the position of disciplinary spectator of Jesse's autism whilst simultaneously depicting Jesse's subjectivity, effecting a problematization of normative and normalizing cognitive assumptions. I counterpose the visuals of Jesse's narrative with that of *Limitless* to argue that his subjectivity offers a cultural antidote to the ethical void Eddie's narrative conveys.

The third chapter tackles the dominant pathological or medical model of dementia diseases. This model frames people living with dementia as abject others; those who remind us of our own mortality and who represent a damaged and degrading life, those who are constructed as an expensive drain on an ever-worsening health care crisis, those who are figured as a brain pathology to fight against. It argues that in contemporary neuro-society dementia subjects and their subjectivity represent for many the neurological worst-case scenario, with discourses of euthanasia and assisted suicide invariably aligning with dementia diseases. The chapter addresses this through a close reading of how the narrative of two detective/mystery novels – Emma Healey's *Elizabeth is Missing* (2014) and Alice LaPlante's *Turn of Mind* (2011) – adopt a generically different structure which emphasizes and privileges present subjective experience over the pathologizing medical gaze.

The chapter mounts a critique of Malabou's work on Alzheimer's which argues that the reality of dementia reflects the destruction of identity. Her reading of plasticity holds that, whether productive or destructive, once a neurological change occurs it cannot be reversed, hence chapter one's theorization of the future

oriented plastic narrative. I challenge this through close readings of the novels' narrative structures which, in difference to Malabou's model, inherently rely on the ability to return to previous elements of plotting. Reading Peter Brooks' psychoanalytic understanding of plots, I conceptualize the idea of an 'elastic narrative' to refer to the elliptical nature of the texts. I argue that, far from a tragic story of degradation and forgetfulness, *Elizabeth is Missing's* protagonist Maud (who lives with dementia) should be read as a dynamic, investigative sleuth whose atypical and elliptical nature must be understood through her phenomenological atypical experience. In being such a starkly different first person narration, Maud's perspective forces the reader to suspend normative reading expectation and travel, atypically, with her as she solves the historic disappearance of her sister.

*Turn of Mind* offers a different account of dementia subjectivity in that the reader is unsure whether the dementia protagonist is a killer. The narrative thrillingly explores the biopolitical machinations that come to bear on cognitive differences such as dementia and is a vital text for understanding the gap between how society views dementia and the need to recognize and prioritize individual subjective accounts. The middle of the novel sees a shift in perspective, whereby the protagonist adopts a second person narrative style, which I argue is reflective of her need to escape the 'I' that has become so tainted with prejudice and internalized and implanted feelings of shame and defeat.

## Chapter One: Pill-popping Narratives of Cognitive Enhancement

In 2017, news of a US Defense Advanced Research Projects Agency (DARPA) funded device that could increase learning speeds by 40% circulated. The *Daily Mail* (online) ran the headline: 'The headband that makes you smarter: US military reveals a bizarre device that increases learning by 40% - and it could be commonly used by 2022'.<sup>1</sup> *Futurism* ran the same story online, explaining that stimulation of the prefrontal cortex in macaques led to a 40% increase in learning speed. Reportage of the device focussed explicitly on the notion of cognitive enhancement as science fiction made material reality:

The ability to increase one's brain function almost instantaneously is no doubt appealing. As such, the concept has been a fixture of science fiction for decades (see: 'Flowers for Algernon,' 'Limitless'), but advancements in technology seem to be bringing us closer to a future in which quickly levelling-up intelligence is a real possibility.<sup>2</sup>

DARPA works with the BRAIN Initiative, a multi-billion dollar US research centre, of which one of their research areas is the Targeted Neuroplasticity Training (TNT) program. They explain: 'the program is [...] notable because, unlike many of DARPA's previous neuroscience and neurotechnology endeavors, it will aim not just to restore lost function but to advance capabilities beyond normal levels'.<sup>3</sup> This idea of going beyond 'normal' levels is central to this chapter's discussion of plasticity and the

---

<sup>1</sup> Shivali Best, 'The headband that makes you smarter: US military reveals a bizarre device that increases learning by 40% - and it could be commonly used by 2022', *Daily Mail*, 23 October 2017 <<http://www.dailymail.co.uk/sciencetech/article-5008179/Darpa-reveals-device-increases-learning-40.html>> [accessed 26 February 2018].

<sup>2</sup> Dom Galeon, 'DARPA's New Brain Device Increases Learning Speed by 40%', *Futurism*, 26 October 2017, <<https://futurism.com/darpas-new-brain-device-increases-learning-speed-by-40/>> [accessed 26 February 2018].

<sup>3</sup> 'Boosting Synaptic Plasticity to Accelerate Learning', DARPA, 16 May 2016, <<https://www.darpa.mil/news-events/2016-03-16>> [accessed 26 February 2018].



enhanced human. Three years prior to the article on DARPA's headband, the *Daily Mail* ran: 'The real-life Limitless pill? Drug helps adults learn as fast as children by making the brain more 'elastic''.<sup>4</sup> Again, the blurring of reality and fiction with the reference to the film *Limitless* (2011) is evident here, but also this idea of returning to youth/fighting aging which is typical of the discourse surrounding the plastic conception of the brain.<sup>5</sup>

Such articles feed into a broader cultural discourse of neuroplasticity. Health, wealth, intelligence, expedience, success, and the future, are some of the primary appropriations of this glossy, marketized neuroplasticity. Neuroplasticity is the dynamic process in which parts of the neural system change or reorganise over time. Whilst the process is most active during early-years development, it has been found to continue throughout adulthood as well. Raz Yirmiya and Inbal Goshen call this ability and process 'the most amazing and wonderful capacity of the brain to adapt to the ever changing environment via learning and memory'.<sup>6</sup> The epistemological importance of neuroplasticity emerges in collocation with the signifying power of the brain scan image, so much so that Peter J. Whitehouse writes that 'if the neuroimaging is the face of the neuroscientific turn, then neuroplasticity is certainly

---

<sup>4</sup> Victoria Woollaston, 'The real-life Limitless pill? Drug helps adults learn as fast as children by making the brain more 'elastic'', *Daily Mail*, 31 May 2014, <<http://www.dailymail.co.uk/sciencetech/article-2593268/The-drug-helps-adults-learn-fast-children.htm>> [accessed 26 February 2018].

<sup>5</sup> An opinion piece in *The New York Times* headed 'Return to the Teenage Brain' similarly celebrates the opportunities of neuroplasticity as a means of combatting aging. Richard A. Friedman, 'Return to the Teenage Brain', *New York Times*, 8 October 2016, <<https://www.nytimes.com/2016/10/09/opinion/return-to-the-teenage-brain.html>> [accessed 26 February 2018].

<sup>6</sup> Raz Yirmiya and Inbal Goshen, 'Immune modulation of learning, memory, neural plasticity and neurogenesis', *Brain, Behavior, and Immunity*, 25.2 (2011), 181-213 (p.182)

its underlying central dogma'.<sup>7</sup> The notion of the plastic brain is becoming a central element in contemporary conceptions of subjectivity and personhood, a self that is endlessly malleable and resilient that is able to re-form and improve even after material trauma, such as after a stroke. As the neuro-turn and the brain's workings become more prominent in society and culture, we are encouraged to eat omega-3, train our brains with puzzles, exercise, and reduce stress levels, all in the name of neuromolecular health.<sup>8</sup>

This chapter is particularly interested in exploring the biopolitical imperatives underpinning technology such as DARPA's. It does this to understand the kinds of subjects such neuro-technology produce, which it will do through close readings of two recent cognitive enhancement thrillers, Neil Burger's film *Limitless* (2011), and Ramez Naam's novel *Nexus* (2012).<sup>9</sup> This thesis aims to map the contemporary cultural representation of cognitive and brain difference, of which notions of the enhanced human are some of the most popular narratives today. Moreover, according to technological projections and media speculation neural implantations of enhancement are imminent.<sup>10</sup> These subjects are unlikely to be a pathological matter, which is the crucial point this chapter makes; these by nature are 'enhanced', which is to say at least superficially improved or ideologically considered better than

---

<sup>7</sup> Peter J. Whitehouse, 'A Clinical Neuroscientist Looks Neuroskeptically at Neuroethics in the Neuroworld', in *The Neuroscientific Turn*, ed. by Melissa M. Littlefield Littlefield and Jenell M. Johnson, pp.199-215 (p.205).

<sup>8</sup> Chapter three's exploration of dementia considers this in detail. Indeed, the US Alzheimer's Association website lists key ways to maintain 'brain health', including exercise, diet, mental activity, and sociality. <[https://www.alz.org/help-support/brain\\_health](https://www.alz.org/help-support/brain_health)> [accessed 9 December 2019].

<sup>9</sup> *Limitless*, dir. by. Neil Berger (Relativity, 2011); Ramez Naam, *Nexus* (Nottingham: Angry Robot, 2013).

<sup>10</sup> Aside from this chapter's case studies of *Limitless* and *Nexus*, see contemporary television shows such as *Black Mirror* (Charlie Brooker, 2011-) and *Years and Years* (Russell T Davies, 2019); see above articles speculating on the imminent availability of enhancement technologies.

the 'norm'. Following Rose and Abi-Rached, I understand 'normal' cognition to be a construction of the identification, measurement, and categorisation of cognitive difference (dementia, autism, schizophrenia and so forth).<sup>11</sup> These differences have historically been viewed as subtractions from the very norms they establish, which is to say in some way as cognitively 'deficient', whereas I argue enhancement comes to be an addition to it, an 'improvement' on normality in the name of 'progress'. Extrapolating Lennard Davis' account of the creation of the 'norm' as resulting from the shift from an 'ideal' and unattainable conception of the body/self to a statistical set of averages is enlightening here.<sup>12</sup> Cognitive enhancement sees a return to ideas of the unattainable 'ideal' but made (at least theoretically) materially possible. The unattainable ideal becomes encapsulated in the potential of a better brain. What is being critiqued in this chapter is not the biological fact of neuroplasticity or enhancement (nor its potential for therapeutic benefits), but the formation of the enhanced subject as a socio-political and economic construct – one that works and influences precisely because it is established as exclusive, ideal, and even as an evolutionary step-forward. The ethical problems are apparent: if enhancement is exclusive, what becomes of those economically, biologically, or culturally excluded?

This chapter explores the representation of enhancement today. In *Limitless*, it is exclusive and reflects the neoliberal biopolitics in which its fictional imagining exists. Such biopolitics forestall the possibility of the kind of radical systemic change that Catherine Malabou sees in neuroplasticity, rather entrenching ideas of

---

<sup>11</sup> This is what they refer to as the 'lessons from lesions' approach. *Neuro*, pp.204-6.

<sup>12</sup> Davis explains of disability how in pre-industrial times the 'ideal' preceded the modern understanding of the norm. Lennard J. Davis, 'Normality, Power, and Culture' (p.2).

individuality, speculative futures, and the economisation of life at the site of the brain. Alongside this, I argue that given the new forms of populist politics emerging as frustrated responses to the hollow repetitions of neoliberalism, new representations of plasticity and enhancement are coming to the fore. On the one hand, there is a reaction against experts and science in the Global North, no more evident than in the anti-vaccination movement. In novels like *Nexus*, this distrust sees the freedom and malleability represented by the enhanced/plastic brain become suspect, concerning, and fearful, which marks a return to Cathy Gere's identification of US Cold War anxieties over plasticity's potential for brainwashing.<sup>13</sup> On the other hand, plasticity and enhancement is finding a collective expression, one that does not stress individual adaptability but a more symbiotic exchange with other people and environments. Each of these politicised expressions of plasticity and enhancement will be subject to a close textual analysis.

This chapter first sketches a brief timeline of fictional representations of enhancement and any evolutions in ideological and biopolitical underpinnings, before detailing why such fictions are useful sites through which to evaluate how we understand enhancement today. It develops a close reading of *Limitless* in order to argue that enhancement here represents a neoliberal subjectivity pushed beyond natural (the material brain) and theoretical (neoliberal ideology) limits. It does this by postulating the concept of a 'plastic narrative' which reflects the protagonist's constant metamorphosis via enhancement in dialogue with Malabou's theory of plasticity. It subsequently considers *Nexus's* speculative future which, following

---

<sup>13</sup> Gere, 'Plasticity, Pathology, and Pleasure in Cold War America'.

Fredric Jameson's argument that speculative fiction speaks more to the material present during which they are written, imagines a speculative end-point of what our contemporary treatment and view of enhancement may become, with reference to today's populist ideologies towards self, science, and society, as well as promises and fears of trans- and posthumanism.

### Fictions of Enhancement

Fiction allows a space for the imagination of enhanced subjectivities and an evaluation of the kinds of biopolitical imperatives underpinning them. These imperatives and ideologies are foundational to the construction of neuro-molecular identities and the kind of phenomenological subjectivities these elicit. Yuval Noah Harari's popular book *Homo Deus* - a theoretical account of the future of man, or what he terms, echoing Jameson's *Archaeologies of the Future*, the 'history of tomorrow' - is worth quoting from at length in this regard.<sup>14</sup> Of the future intersection of bioscience, society, and culture he writes:

During the twenty-first century the border between history and biology is likely to blur not because we will discover biological explanations for historical events, but rather because ideological fictions will rewrite DNA strands; political and economic interests will redesign the climate; and the geography of mountains and rivers will give way to cyberspace. As human fictions are translated into genetic and electronic codes, the intersubjective reality will swallow up the objective reality and biology will merge with history. In the twenty-first century fiction might thereby become the most potent force on earth, surpassing even wayward asteroids and natural selection. Hence if we want to understand our future, cracking genomes and crunching numbers is hardly enough. We must also decipher the fictions that give meaning to the world.<sup>15</sup>

---

<sup>14</sup> Fredric Jameson, *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions* (London: Verso Press, 2005).

<sup>15</sup> Yuval Noah Harari, *Homo Deus: A Brief History of Tomorrow* (London: Vintage, 2017), p.177.

As with medicine and diagnosis, Harari notes how biology more generally is considered fact up until it becomes fictionalised. ‘Raw’, ‘objective’ data quickly becomes enmeshed in a biopolitical haze replete with ideology, lobbyists, religion and so on; indeed, the very impetus for beginning such research often comes from the same biopolitical actors which have vested economic interests. Fiction, for Harari, is a powerful epistemology that could see the putatively ‘objective’ idea of science become re-written by social or political discourses as discussed in the introduction regarding Metzl’s genealogy of Prozac, or in my reading of how fictional narratives establish deviant pathological models of trans subjectivity.<sup>16</sup>

I supplement Harari’s account by noting that this objectivity is always already created in dialogue with such fictions, not only once it has left the neutrality of clinics or laboratories, but from its inception. This is why my model of the neural implantation takes as its starting point science and culture’s intractable entwinement. Harari’s account of fiction and emergent and future technology is important for my work on enhancement. I take his argument that ‘fiction might thereby become the most potent force on earth’ as a provocative epistemological challenge against the hegemonic belief in scientific models and explanations over cultural or human narratives – a belief encapsulated by Fiona Phillips’ response to brain-based explanations of mindfulness.

To this extent, I argue that fictional enhancement narratives, particularly in the crime and thriller genre, are useful critical tools that highlight both the changing nature of what we mean by enhancement, and the biopolitical contexts underpinning

---

<sup>16</sup> See introduction, footnote 88.

these changes. A brief survey of some exemplary texts is useful in detailing this, which I divide into three groups, 'change from deficit', 'change in reality', and 'change towards enhancement'. The first group refers to brain alterations made to 'improve' upon a perceived cognitive deficit or societal problem, reflective of the normalising effect Foucault describes in his account of biopolitics.<sup>17</sup> Most notable among these narratives is Daniel Keyes' 1966 novel *Flowers for Algernon*. In it, Charlie, a man whose childhood phenylketonuria leaves him with an 'IQ of 68', undergoes experimental surgery dramatically increasing his 'intelligence'; however, the effects eventually reverse. Whilst *Flowers for Algernon* is not explicitly a crime narrative, its microbiological underpinnings and laboratory experiments prefigure the ethical debates that began in earnest in the 90s in relation to the neuro-turn.<sup>18</sup> Walker Percy's *The Thanatos Syndrome* (1987) not only encapsulates the turning from psychological to neuroscientific epistemologies of subjectivity in its juxtaposition of Freudian depth models of the mind and neuromaterial models of the brain, but focuses on neuro-enhancement via the biopolitical aim of population improvement and control. In the novel, Tom, a psychiatrist recently released from prison, returns to his hometown to find its population affectively dulled, but cognitively enhanced.

---

<sup>17</sup> Foucault writes that 'a normalizing society is the historical outcome of a technology of power centred on life', *History of Sexuality Vol. 1*, p.144.

<sup>18</sup> See popular and public debates into cloning and genetic testing during the 90s that continue the ethical and moral issues surrounding molecular medicine. In 1991, Robin Herman asked in the *Washington Post*, 'Though still in its rudimentary stages, human gene therapy prompts the questions at once scientific, ethical, and theological: How far can scientists go in altering the genetic makeup of individuals before the risk changing the very nature of a person – the basic characteristic of "humanness?"' Robin Herman, 'Tinkering with the Essence of Humanity', *Washington Post*, 8 October 1991, in Proquest <<https://search-proquest-com>> [accessed 22 July 2019]. Six years later in Judy Mann wrote of cloning, 'What is certain is that the genie is out of the bottle, and no one is going to put it back. [...] What we have to do now is understand the new biotechnology and make it work for the good. My daughter's advanced placement biology class has spent hours learning about this and discussing its ethical and moral implications. The rest of us should do the same'. Judy Mann, 'The Brave New World of Cloning', *Washington Post*, 28 February 1997, in Proquest <<https://search-proquest-com>> [accessed 22 July 2018].

He discovers an experiment in which the town's water supply is spiked by the authorities with highly concentrated sodium in an attempt to improve society in the existing real-world model of water fluoridation. The novel is an explicit consideration of the dual nature of biopolitics, at once attempting a productive normalising control over the population while existing under deductive threat of geriatric eugenics.<sup>19</sup> Gary Braver's *Gray Matter* (2002) situates enhancement in class and economic terms, combining the kind of individual improvement seen in *Flowers* within a wider framework of middle-class suburban America. In the novel, rich, competitive parents pay for their children to have illegal brain surgeries to correct perceived cognitive differences. Here, medical interventions at the site of the brain again initially aim at correction, but also depict enhancement as a frequent side effect. These three texts are typical of a range of fictional narratives that rely on the idea that brains or cognition considered 'different', 'deficit', or 'problematic' can be improved through medical intervention, even if at a population level as with *The Thanatos Syndrome*.

The second grouping reflects fictional medication that dramatically alters reality for all. For example, *The Matrix* (1999) originated the cultural trope of taking either the blue or red pill to respectively remain ignorant or to learn the truth. In *The Matrix* the truth is that the world is a simulation to distract humans from the reality of having been enslaved and kept alive as an energy source for robots. The manipulation of the brain is central here, with Morpheus, the leader of a group of

---

<sup>19</sup> The biopolitical enhancement in the novel seeks to reaffirm and rebuild a healthy body politics around the norm. For instance, the secret water spiking is celebrated by officials as a magic wand that overnight 'could reduce crime in the streets by eighty-five percent [...] teenage suicide by ninety-five percent', and increase a 'healthy heterosexual libido'. On the other hand, there is a Quality of Life division administering euthanasia services. Walter Percy, *The Thanatos Syndrome* (New York: Farrar Straus Giroux, 1987) pp. 191-3.



humans awakened from the simulation, explaining to the hero Neo: ‘they built a prison out of our past, wired in to our brains and turned us into slaves’.<sup>20</sup> The red pill effaces the false consciousness created by the robots, awakening those who take it to the harsh truth of reality. In this vein of altered-reality, *Equilibrium* (2002) imagines a future in which emotion is forcibly suppressed by the mind-altering drug Prozium. Where *Thanatos* considers the biopolitical effects of spiking a single town’s water supply with sodium, *Equilibrium*’s world is completely different to reality, in that whilst Prozium has successfully eliminated the biopolitical effects of war – free will, art, and culture have similarly disappeared, removing the kinds of epistemological approaches to ethics, morality, and subjectivity such forms necessarily provide.

The final group are narratives that represent changes to brains or cognition explicitly as forms of enhancement, which is to say, not necessarily the ‘correction’ of a pre-existing cognitive difference as in *Flowers*, but an ‘improvement’ to what is considered normal. Luc Besson’s film *Lucy* (2014) explores pharmaceutical enhancement through the myth that we only use ten percent of our brains. The film sees the eponymous hero Lucy’s brain power increase exponentially, resulting in a posthuman evolution by the film’s close. The drug becomes symbolic of the precarious biopolitics surrounding its genesis: illegally manufactured for mass unregulated profit, Lucy is kidnapped and forcibly made into a drug mule. Though the end of the film disturbs the notion of enhancement as improvement, as least at a human level, the central conceit that the brain is capable of surpassing natural limits

---

<sup>20</sup> *The Matrix*, dir. by. The Wachowskis (Warner Brothers, 1999).

through medical intervention is typical of the kind of biological neoliberalism Cooper identifies as being the extraction of surplus value from life itself.<sup>21</sup>

This chapter focusses on two texts, *Limitless* and *Nexus*, that frame neuroscientific and pharmaceutical intervention as a means, like *Lucy*, to cognitively enhance or improve the human. The key difference between these texts and *Lucy* is agency, where *Lucy*'s role as a forced drug-mule causes the accidental ingestion of the drug, *Limitless* and *Nexus* approaches neuro-enhancement as an act of personal volition. It is not a by-effect of an attempt to reverse brain damage but an intentional act to improve upon the constructed norm of cognition. *Nexus* is set in 2040, a world where neuroscience is vastly developed and enhancement is everywhere, but increasingly prohibited due to the creation of the titular Nexus 5 – a drug that collectively connects minds and which becomes in turn inscribed with hope, fear, and power.

Both of these texts are neuro-thrillers, a term developed by Analee Newitz two years after Roth coined the neuronovel. Surveying recent fictional narratives she asks: 'why have our minds become crime scenes?'.<sup>22</sup> She gives three answers. First, 'gadget futurism', in which new real-world technologies are filtering into imaginative narratives. Second, 'Alzheimer's terror', which sees the memory deficits of the disease be symbolically compensated in films like *Memento* where memory loss is not necessarily depicted as an obstacle to heroic victory. Third, 'your brain belongs to the company', in which tech-firms are imagined as holding ultimate control over

---

<sup>21</sup> Cooper, *Life as Surplus*.

<sup>22</sup> Annalee Newitz, 'The Rise of the Neurothriller', *io9*, 1 March 2011, <<https://io9.gizmodo.com/5765657/rise-of-the-neurothriller>> [accessed 22 July 2019].

lives and choices. Whilst a useful touchstone, I argue Newitz's category of 'neuro-thriller' is too general in its inclusion of both technology and pathologies of the brain and as such attenuates the specific ontological changes implantations of brain difference create, as well as eliding important formal differences. To address this, I differentiate between 'neuro-thrillers' and 'neurological thrillers'. Neuro-thrillers emerge from the expansive, cutting-edge, biotechnological structure of feeling that encapsulates the cultural neuro-turn. These reflect the fascination, threat, and potential neuro-technologies could bring *outside* of the pathological model and imagine the potential of trans- and posthuman futures and the kinds of enhanced subjectivities these may produce. On the other hand, I use neurological thrillers to refer to texts that centre on specific neural pathologies or states of difference underpinned by pathological or medical models, which I explore in the following two chapters. There is considerable overlap between the two; however, the distinction is helpful in determining the ethical and biopolitical questions their plots consider. For instance, do they look at the brain primarily via technology, or pathology, and are they concerned with populations or individuals? In doing so, the particularities of the kind of disciplinary techniques and biopolitical imperatives underpinning the textual implantations becomes clearer. (See table below for an overview of these sub-generic differences.)

| Neuro-thriller  | Neurological Thriller  |
|---|--|
| Often focus on new technologies of brain enhancement/manipulation. The brain is often an economised object – where criminal activity on/around it can yield profit.   | Often focus on brain as a site of pathology. The pathology/difference can be the cause of criminal activity, or more unusually a means to contain it.  |
| Akin to a traditional thriller, the stakes are global, and the narrative is fast-paced. Crime is often endemic and wide reaching.   | Akin to the psychological thriller. Usually there is a specific deviance or deviant action linked to an individual brain's difference. Stakes are localised and crime is usually specific.                 |
| People are rarely implanted with neurological difference; implantation is more often literal – such as a means of biotechnology. However, such technology can produce ontological shifts in characters.                           | Implantation is individual and usually underpinned by medical diagnosis and effects ontological shifts in characters.  |
| Ethics usually centre on problems of biotechnology.   | Ethical considerations consider how the individual is treated, or mistreated, and how society should deal with these differences.  |
| Containment of the ethical problems posed is not guaranteed.  | Containment of the ethical problems posed is not guaranteed.   |
| Examples: <i>Inception</i> (Christopher Nolan, 2010), <i>Limitless</i> (Neil Burger, 2011), <i>Lucy</i> (Luc Besson, 2014), <i>A Box of Birds</i> (Charles Fernyhough 2012), <i>Black Mirror</i> (Charlie Brooker, 2011-present). | Examples: <i>Good Me Bad Me</i> (Ali Land, 2017), <i>A Philosophical Investigation</i> (Phillip Kerr, 1992), <i>Paper Ghosts</i> (Julia Heaberlin, 2018), <i>Elizabeth is Missing</i> (Emma Healey, 2014). |

Both *Limitless* and *Nexus* are typical of the thriller genre's demand for fast paced narratives in which the 'scale of the threat' appears 'to be vast, its ramifications immeasurable and boundless'.<sup>23</sup> Neither consider specific pathologies, rather they are concerned with neurotechnology's ability to enhance the human condition, and both imagine different figurations of what a neural implantation of cognitive

<sup>23</sup> David Glover, 'The thriller', *Cambridge Companion to Crime Fiction*, ed. by Martin Priestman (Cambridge: Cambridge University Press, 2003), pp.135-154, p.138.

enhancement may be. *Nexus* adheres to the thriller conventions more typically than *Limitless*, with the format providing a ready vessel to explore the ethics, benefits, and misappropriations of enhancing the human brain through a plot of global espionage. *Limitless* works differently. Whilst retaining the faced-paced format of the thriller, it is also humorous and exists in a world in which crime is endemic, and because of this, the film is ostensibly ambivalent in regard to the ethics of enhancement. It swings between the hyper-real sparkle of Bradley Cooper's character's enhancement, which invites the viewer to collude in his enhanced criminality, and a narrative that does not allow expected closure, which, I argue, comes to act more like an indictment of the exhaustion of the neoliberal biopolitics Gere and Cooper note as being foundational to plasticity today.<sup>24</sup>

### *Limitless*

This section seeks to show that *Limitless* ostensibly celebrates cognitive enhancement despite the void in ethical responsibility enhancement creates. Yet, through two key avenues of analysis, what I term the film's incessant 'plastic narrative', and the facetious treatment of the protagonist's criminality, I explore how enhancement here tacitly critiques the problems of neoliberalisation at a neurochemical level.

Eddie Morra is a languishing, slovenly author who, at the start of the film, is dumped in a diner by his successful just-promoted girlfriend, Lindy. Afterwards, Eddie runs into his former brother-in-law Vernon from his earlier marriage to ex-wife Melissa. Vernon offers Eddie a new pill (NZT), causing his cognitive function to

---

<sup>24</sup> See Gere, 'Plasticity, Pathology, and Pleasure'; Cooper, *Life as Surplus*.

increase dramatically. He rapidly writes his long-ignored book, sharpens his appearance, and improves his immediate problems. He visits Vernon to get more NZT but when he returns from running an errand he finds Vernon murdered and quickly steals his supply of NZT. Eddie's ambitions grow and he decides that money is the only way he can make an impact in the world. He plays the stock market, befriends the rich, and is employed by economic titan Carl Van Loon to assist with his merger with fellow titan Hank Atwood. However, the drug begins to cause temporal blackouts during which Eddie becomes embroiled in a murder. He is also hunted by loan sharks and employees of Hank Atwood who are trying to steal the NZT, the latter successfully. Despite this, Eddie is in a position to hire the best defence lawyer, employ scientists to combat the negative effects of the drug, kill the loan sharks pursuing him, and re-steal the drug. The film ends with an epilogue set twelve months later in which Eddie is running for political office and wins a verbal showdown with Van Loon, claiming no longer to be on the drug whilst retaining its cognitive enhancement. However, in the final scene a collusive eye-twinkle to the camera as well as his retained fluency in Mandarin heavily implies that Eddie is still taking the drug.<sup>25</sup>

Underpinning my analysis of the film is a close reading of its narrative, which I describe as 'plastic'. In physics, if things are plastic they are mutable and not fixed. They are also unable to return to a prior form. This plastic property integrates with processes and discourses emerging from the neuro-turn. As mentioned, neuroplasticity refers to the neuronal system's ability to change and adapt

---

<sup>25</sup> In the spin-off television series of the same name (2015-16), Bradley Cooper reprises his role as a guest star and explains that he continues taking NZT.

throughout life, a process Whitehouse describes above as being the turn's central dogma. I argue that *Limitless* reflects a form of plasticity that is underpinned by the biopolitics that were hegemonic during the film's production, and that Eddie's narrative subjectivity reflects precisely this mutable plastic property because enhancement configures his brain to be the ultimate depiction of neoliberalism: ever adapting without consideration of the past. With this central argument in mind, I will show how narrative conflicts that are typical to thrillers are quickly overcome throughout the film because of NZT, resulting in a plot explicitly focussed upon 'progress', with little time for retrospection, introspection, or ethical evaluation. Unlike typical thrillers, enhancement makes a mockery of sustained or seemingly insurmountable conflict because Eddie can seemingly think his way through anything. This results in a kind of 'never-end' because there is no typical resolution, only a continual drive towards the future and an insatiable temporal unfolding. This thesis's introduction considers the figuration of the plastic subject, and *Limitless* encapsulates this figure through the film's 'plastic' narrative. The plastic subject is one whose narrative is dictated by biopolitical imperatives that impel self-monitoring health, a utilisation of one's own biological resources to extract profit (for example through overwork), an obsession with futurity, and increasingly an integration of biotechnology and molecular medicine designed to further extend natural capacity (as with the kind of smart drugs *Limitless* exaggerates). Bearing this in mind, the narrative is plastic, not because it breaks with temporal or spatial conventions as with the plots of Christopher Nolan's *Memento* (2000) or *Inception* (2010), but rather because the protagonist aligns with the ideology imbibed by neoliberal plastic subjectivity: flexible beyond natural limits.

The film lacks resolution because Eddie's plastic narrative does not allow for a satisfactory and generically expected instance of *mea culpa*. There is no acknowledgement of fault or recognition of the need to change. This is arguably indicative of its ideological affinities with the neoliberal project and its investment in the ultimate resilience of market forces. Rather than experiencing the hubristic revelation or 'crash' we might expect, Eddie knows best because his transhuman cognition allows him to read and play the stock market. In this regard, Eddie reflects Pitts-Taylor's description of the neoliberal appropriation of brain plasticity as depicting a 'use-disuse hypothesis: "use it or lose it"'. This holds that one must maximise and maintain one's brain in order to capitalise on the neoliberal system.<sup>26</sup> In sum, we can say that a plastic narrative is a narrative that reflects the driving forces of neoliberalisation when combined with the enhanced cognitive state of the protagonist: biopolitical imperatives and neuroscientific technology here beget plotting and narrative.

Malabou has written extensively on the philosophical implications of neuroplasticity, arguing that it provides a template for the radical potential inherent in all of us to metamorphosize. For this to happen, life via plasticity comes to be understood as endlessly productive, hinging on the ability to form and re-form that can be used to resist the stresses of late capitalism. However, my reading of *Limitless* highlights the limitations of Malabou's ontology, as, rather than challenging hegemonic narratives, plasticity as understood via enhancement is represented as a

---

<sup>26</sup> Victoria Pitts-Taylor, 'The plastic brain', pp.644-645.



thoroughly neoliberal subjectivity, in which Malabou's description of radical metamorphosis subsumes into a reinforcement of the status quo.

There are numerous examples of Malabou's putatively metamorphic model of plasticity in *Limitless*. For example, NZT affords the material brain changes necessary for plasticity to produce the ontological changes Malabou describes. However, the very premise of NZT enhancement is at odds with Malabou's philosophy. This is because it does not seek to decentre the general human condition away from neoliberal trappings, but is a technology founded on neoliberal ideology, enabling instead enhancement of an individual human's condition. As in material reality, the fictional biotechnology that creates Eddie's enhanced implantation exists in an economy of promise and speculation. Melinda Cooper writes regarding the relationship between biotechnology and neoliberalism: 'promise is what enables production to remain in a permanent state of self-transformation, arming it with a capacity to respond to the most unpredictable of circumstances, to anticipate and escape the possible "limit" of its growth'.<sup>27</sup> This is what we see in *Limitless*'s narrative. Eddie's subjectivity is reflective of an enhanced plastic adaptability, much as how neoliberalism is an 'enhanced' form of capitalism. Both are pushed to the extreme and find within that extreme other ways to adapt and keep expanding, reflected in the narrative pace and structure. This is why if Eddie's forward momentum is frustrated, there is an immediate solution to return the situation toward expansion: a solution found through the enhancements brought by NZT. Indeed, Malabou's theory of plasticity has been subject to the same criticism, with Alexander Galloway

---

<sup>27</sup> Cooper, *Life as Surplus*, p.24.

describing Malabou's plasticity as a 'voracious monster' in terms of its expansive theoretical scope.<sup>28</sup> As I outlined in the introduction with reference to the work of Pitts-Taylor, Malabou's plastic ontology, like Eddie's enhancement, is indivisible from the surrounding biopolitical imperatives. What the following close reading of *Limitless* shows is that enhancement and discourses of plasticity must be analysed with a thorough consideration of their ethical implications, particularly with regard to what is understood by the figure of the enhanced human.

The film's beginning is key in constructing the plastic narrative. It begins with Eddie's non-diegetic narration stating: 'obviously I miscalculated a few things', referring to the fact that he is standing on the ledge of his penthouse apartment, currently under siege by murderous loan sharks, contemplating suicide (fig. 1). He continues: 'why is it that the moment your life exceeds its wildest dreams, the knife appears at your back?', evoking the status, excessive power, and dramatic decline of Julius Caesar, before continuing: 'I will never let them get me' as he takes a foot off the ledge. Eddie sees his neighbour being killed through the window and then resumes his reflexive monologue: 'for a guy with a four digit IQ I must have missed something, and I hadn't missed much. I'd come this close to having an impact on the world and now the only thing I'd have an impact on was the sidewalk'. A tracking shot then assumes the perspective of Eddie as if he has fallen from the roof and landed on a taxi (fig. 2), before continuing into the streets of night-time New York (fig. 3 and fig. 4). The shot continues into a billboard of a pixelated New York skyline

---

<sup>28</sup> Alexander Galloway, 'Catherine Malabou, or The Commerce in Being', in *French Theory Today: An Introduction to Possible Futures*, (New York: TPSNY/Erudio Editions, 2010), <<http://cultureandcommunication.org/galloway/FTT/French-Theory-Today.pdf>> [accessed 9 January 2019].

(fig. 5) and fades into a brain scan image (fig. 6) before magnifying into neuronal visuals (fig. 7). The shot then assumes the structure of a cell (fig. 8), which fades into the geography of New York (fig. 9).



Figure 1 - Eddie standing on the ledge of his penthouse apartment.



Figure 2 - The shot feigning Eddie's suicide.



Figure 3 - The roving shot through New York.



Figure 4 - A rapid paced shot through a tunnel.



Figure 5 - The shot entering a billboard.

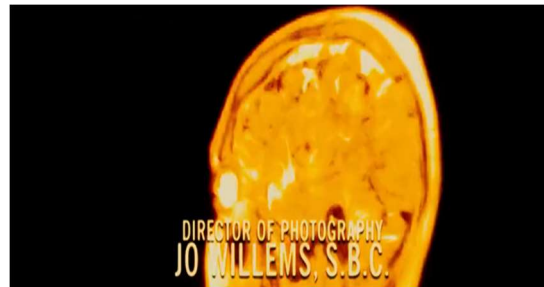
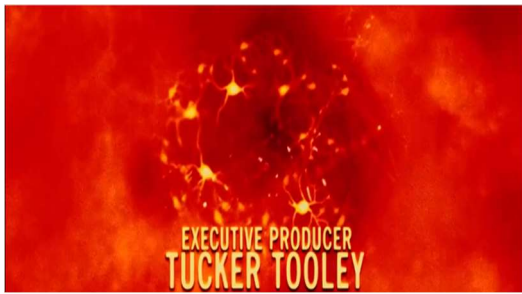
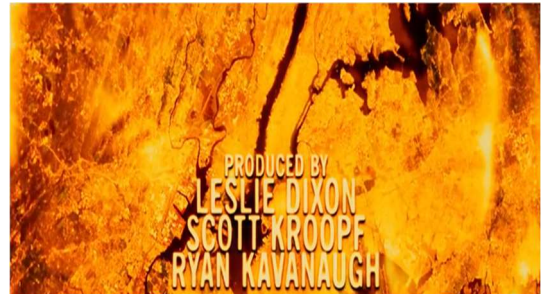


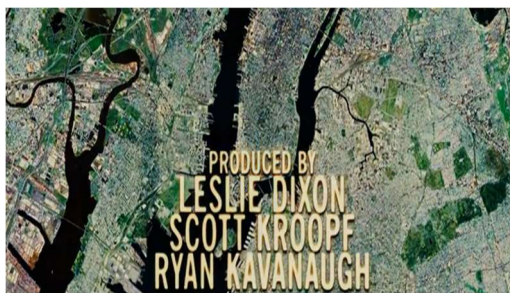
Figure 6 - The billboard morphing seamlessly into a brain scan image.



*Figure 7* - The brain scan magnifying into a collection of electrical impulses.



*Figure 8* - The shot resembling the architecture of a cell.



*Figure 9* - The cell structure becoming the geography of New York.

The film thus begins with an expansive tracking shot that cuts through the architecture of the city, the architecture of a brain, and the geography of New York, before focussing on Eddie on a Manhattan street prior to his enhancement and the consideration of suicide. Initially, this analeptic structure seems to negate my argument that the film's plastic narrative reflects neoliberal subjectivity, by which I mean the indefatigable pursuit of progress and expansion with little thought of the past or consideration of the present. However, this technique is central to the meaning made by the film's plastic narrative. Not only does the imagery through the city set a fast-metronomic beat, but the fact that the shot continues after the supposed suicide (fig. 4) foreshadows a key conceit of the film: any potential narrative conflict that may delay Eddie is rapidly dealt with by the abilities afforded

by enhancement. The plastic narrative, like neoliberalism, will mutate and adapt to prevent cessation.

This incessant motion the opening scene establishes recurs throughout the rest of the film and becomes indicative of Eddie's enhancement. For instance, having taken NZT Eddie begins to make-over his life. Lasting little over ten seconds and in the same type of continuous shot that opens the film (fig. 3 and 4), the viewer sees multiple Eddies getting his hair cut, doing multiple sit-ups (fig. 10), and trying on multiple new clothes (fig. 11). The make-over montage is a filmic staple, but the rapidity makes it almost into parody, in which superficial changes signify the birth of a new, enhanced subjectivity. For Eddie, time and narrative are neoliberally plastic; change is individual and can be instantaneous.



*Figure 10* - An effect showing multiple Eddies exercising.



*Figure 11* - An effect showing multiple Eddies getting a makeover.

Moreover, the enhanced and socially erudite Eddie is invited to an unnamed tropical beach by rich people he meets at a bar. In a scene that lasts little over a minute, we see a plane, high-speed driving, and Eddie jumping off a cliff into the sea. Before jumping, his narration explains: 'only problem? If I wasn't moving forward I felt like I was going to explode'. This is the plastic narrative made most explicit. Not only does it visually mimic the possible suicide jump that begins the film, thus foreshadowing

that his narrative will not 'end' in any typical fictional understand of resolution, but it also mirrors my critique of Malabou's conception of plasticity. Though she might critique Eddie's adoption of neoliberal models, Malabou's notion of plasticity makes room for these models in her focus on adaption and metamorphosis. Malabou explains that plasticity has both formative and destructive capacities, writing that plasticity:

means at once the capacity to *receive form* [...] and the capacity to *give form*. Talking about the plasticity of the brain thus amounts to thinking of the brain as something modifiable, "formable," and formative at the same time. [...] But it must be remarked that plasticity is also the capacity to annihilate the very form it is able to receive or create. [...] We thus note that plasticity is situated between two extremes on the one side the sensible image of taking form [...] and on the other side the annihilation of all form (explosion).<sup>29</sup>

For Malabou, plasticity is a contingent process whereby form is both produced and destroyed (chapter three explores Malabou's concept of destructive plasticity in relation to dementia diseases). Malabou hopes her plastic ontology can erode the modes of subjection enacted under late capitalism. However, a reading of Eddie through this lens only seems to compound its trappings, because through cognitive enhancement, Eddie is always mutating beyond new limits. Limits that would reflect Malabou's destructive plasticity (in the symbolic form of narrative conflicts such as Eddie losing his NZT, or the reality of medical events such as a stroke) are always overcome by the productive plasticity of Eddie's brain: enhancement via plasticity writes the narrative here and becomes its own controlling intoxicant. At each narrative obstacle Eddie's brain 'plasticises', avoids destruction, and continuously propels Eddie's narrative forwards. Again, indicative of Malabou's model, the 'ideal'

---

<sup>29</sup> Malabou, *What Should We Do With Our Brain*, p.5.

of enhanced subjectivity proves to contain risky extremes because enhanced Eddie exists between the states of (plastic) explosion and expansive mutation: jump off the cliff and keep moving forward or risk receding back to cognitive normalcy, or worse, a form of cognitive difference categorised medically and culturally as brain 'damage'. This worst case is reflected in his ex-wife Melissa – who lives with permanent neurological damage having risked enhanced status by taking NZT.

However, if Melissa's experience acts as a warning, Eddie refuses to be receptive, preferring his own individual judgement, aesthetically compounded through this 'multiple Eddies' effect that recurs throughout the film. After a successful meeting with Van Loon, Eddie takes a walk and his narration describes his metamorphosis-via-enhancement: 'there are moments in life, moments when you know you've crossed a bridge. Your old life is over'. This brief instance of psychological introspection regarding the ontological shift enhancement has produced is immediately followed by speculative neoliberal plastic expansion. He asks: 'how far could I go? CEO? A global force? Maybe President?', with the capabilities brought by the compact of cognitive enhancement and neoliberal ideology. Moments later he notices in a shop window that he is seeing multiple reflections of himself in a shop window, signifying an increased temporal speed (fig. 12), before seeing himself emerge from a different part of the street (fig 13).



*Figure 12* - Eddie seeing himself temporally ahead of his reflection.



*Figure 13* – Eddie seeing himself out of temporal harmony.

Typical temporal rules no longer apply because Eddie's brain is no longer typical. It is pushed beyond the limit through unnatural enhancement as reflected here in the film's visuals. This is significant in terms of the plastic narrative because there is a sense that it could implode under the unnatural strain and expose what neoliberalism has become: a hollow system dependent on an ideology of endless reproduction and expansion, here symbolised by the continual 'multiple Eddie' montages and imagery. Watching the film there is a real sense of precarity, that enhancement could destroy everything. A sense only contained by the epilogue.

Having successfully fought off the apartment attack in the opening scene and, as a result removed the need to jump off the ledge, Eddie is able to resume taking the NZT. This, as his narration explains re-opens the expansive future: 'and it was all still possible'. The 'and' here typifies the plastic narrative as, with neural enhancement, Eddie is always chasing the next event and opportunity regardless of the past. The film's actual ending comes as a filmic epilogue set twelve months later and plays out like the film within the film. It is a narrative ingemination in which everything enhancement ought to do, is done, in which everything that has gone wrong is erased by the forward march of the plastic narrative. It begins with the camera passing over Eddie's published book 'Illuminating The Dark Fields: Mapping



the American Psyche', an ironic title given enhancement has flattened Eddie's psychological depth.<sup>30</sup> Where Eddie was about to lose his book deal before he enhanced through NZT, here, that the camera briefly passes over signifies that his being a published writer is now the minimal benchmark of his success. Further, directly mirroring the scene in which he sees multiple selves in the shop window (fig 12), here the viewer sees Eddie walking past multiple Eddies in the guise of political promotion signs (fig. 14). However, where this effect previously symbolised precarity, now it reflects certainty.



Figure 14 – Eddie walking past his campaign posters.

Similarly, Eddie's confession during the suicide that is constructed as a possible narrative end: 'obviously I miscalculated a few things', is corrected in this epilogue when he precisely calculates the physics of a van crashing into a car. He is successfully running for senate and the only narrative obstacle, necessary, I argue, for the ingeminate structure to highlight its ability to remove or efface past mistakes and conflicts, is that Van Loon is waiting unannounced in his office. Van Loon informs Eddie that he has bought Eiben-Chemcorp Pharmaceuticals, who unofficially manufacture the NZT, and that he has destroyed Eddie's private laboratory. Thinking he has leverage over Eddie, he offers Eddie a 'limitless supply' of NZT in return for

---

<sup>30</sup> This is a reference to Alan Glynn's original novel *The Dark Fields* (London: Faber and Faber, 2001).

political favours. Van Loon then offers to take them to lunch, and there is a brief close up shot of Eddie's face in which his moving eyes seem to signify his enhanced brain rapidly calculating his next move. Moments later, in front of Van Loon's limo, Eddie says that he is off NZT to which Van Loon replies: 'on it or off it there's no scenario you're not working for me'. Unperturbed, Eddie says: 'you think I didn't learn anything? That my synapses didn't change?', at which point he calculates the car crash saying to Van Loon that if he worked for him: 'you'd end up as my bitch'. It ends with Eddie ordering his lunch in fluent Mandarin sitting across from Lindy who had dumped him at the start of the film. Not only does the sparkly hyperreal blueness of his eyes, a motif used throughout the 'enhanced' periods of the film, imply he is still taking the drug, but in a mirror image of the beginning of his narrative he is back with his girlfriend, not in a lowly diner, but commanding attention in a restaurant. This ending is not a return to a status quo, but an enhanced departure from normalcy. The film ends with the high energy 'da da da da da' chant from The Black Keys' 'Howlin' for You', in order to continue the expansive plastic beat that pulsates throughout the film into the credits. The lyrics continue: 'I must admit, I can't explain, any of these thoughts racing through my brain'.<sup>31</sup> Through different mediums, then, the plastic brain both opens and closes the narrative: with the visual kaleidoscopic mutating brain in the opening (fig. 6,7,8), and the vivacious aural brain reference as the scene cuts to black and the film comes to a 'close', if not a typical 'end' because there lacks any characteristic resolution, only superficial expansion. Indeed, the lyrics are important here as they are indicative of the lack of psychological subjectivity;

---

<sup>31</sup> The Black Keys, 'The Black Keys - Howlin' For You [Official Music Video', *YouTube*, 11 February 2011, <<https://www.youtube.com/watch?v=TLSpj7q6 mM>> [accessed 22 July 2019].

Eddie cannot explain his thoughts or action because this kind of neoliberal enhancement has seen his selfhood become only a means of neurochemical production, re-production, and progress.

It is the plastic narrative form that precludes any typical 'moral' of the story or a subjectivity that looks beyond the central theme of progress. The moral, here, is of complete individuality, that by enhancing your brain you cannot be dictated to even by economic titans, indeed, *you* get to dictate: it is the moral of the self-made all-American man, but instantaneous through wonder-drugs. The final showdown between Van Loon and Eddie is key. Van Loon symbolises an older-guard of post-war capitalism: privileged, laissez-faire, enduring, and more representative of psychological paradigms; Eddie represents a contemporary neoliberal caste: necessarily flexible, prospective, precarious, and more representative of neuroscientific paradigms.<sup>32</sup> That Eddie's enhanced subjectivity is seen to subordinate Van Loon is starkly different to the novel on which it is based. In the novel, enhancement leaves Eddie in a motel, pursued and close to death; in fact, the possible suicide beginning the film aligns much more closely to the novel's ending. There are two main ways of reading this difference. First, as being reflective of the increasing purchase neuro-models have regarding subjectivity and personhood in

---

<sup>32</sup> By a psychological I refer to Freud's 'city of Rome' analogy from *Civilisation and its Discontents* (1961, 1930 in original German). Freud briefly describes the many changes to Rome throughout history (settlements, republic, modern day) before writing, 'suppose that Rome is not a human habitation but a psychical entity, that is to say, in which nothing that has once come into existence will have passed away and all the earlier phases of development continue to exist alongside the latest one'. (p.17). Freud's argument is that once formed in the mind, things (memory, trauma) do not decay or disappear with past and present layering somewhat chaotically atop each other. Hence the enduring nature of Van Loon's style of long-standing, slow growth narrative. Neurological reflects the flattening of the psychological 'city'. Unlike Freud's psychic city in which nothing properly destroys, plastic subjectivity and the plastic brain hold that material destroys and reforms – not an enduring narrative but a series of re-forming palimpsests; Sigmund Freud, *Civilisation and Its Discontents*, trans. by James Strachey, (New York: W. W. Norton and Company, 1962).

society and culture. Alan Glynn's *The Dark Fields* was published in 2001, engaging with the hype and fear of genetics and neuroscience that dominated science and culture in the 90s. By the film's release in 2011, the neuro-hype/fears around biological manipulation had become much more of a neuro-normal.<sup>33</sup> Second, as being an indictment of the prosperity and good-life gap between the baby-boomer and millennial generation that has come to define generational differences in the twenty-first century. In other words, traditional and generically expected redemption/retribution narratives that would usually punish or rebuke a character as ethically corrupt as Eddie (as I explore below) is elided by the potential of enhancement. Eddie is the lovable, flawed protagonist not because his criminal activity is excused, but because it fits the contemporary narrative of the generational underdog. This gives rise to a celebration of Eddie's neuro-domination over Van Loon in a pseudo David versus Goliath narrative in which the viewer imagines themselves as Eddie in succeeding against economic odds.

However, in many ways this is an ideological trap and does nothing to decentre the neoliberal subjective mode, rather it becomes a fictional fantasy of overcoming it.<sup>34</sup> I argue that this can be read otherwise as a tacit critique of the hollowness of the plastic narrative and the neoliberal biopolitics underpinning it. Between 2001 and 2011 there was the 2008 global recession. If, in 2001, novel

---

<sup>33</sup> Consider again the above brief timeline of enhancement fiction. Until recently, enhancement represented a site of anxiety; either in terms of a 'problematic' brain that was to be fixed or cured or in terms of the need to biopolitically improve persons and groups. Enhancement has only recently become an opt-in decision.

<sup>34</sup> See Fredric Jameson's concept of the fantasy bribe. For Jameson, popular narratives 'cannot manipulate unless they offer some genuine shred of content as a fantasy bribe to the public about to be so manipulated'. Fredric Jameson, 'Reification and Utopia in Mass Culture', *Social Text*, 1 (1979), 130-148 (p.144).

Eddie's enhancement narrative ended in death, in 2011 when neoliberalism had survived its own expected destruction through a Lazarus move with the bailing out of the banks, the narrative expectation of an end point had become simultaneously so saturated yet unfulfilled it had disappeared as a possibility. Tied with other aspects of disaster capitalism, such as ecological crises and the shifting demands of aging populations, the text becomes imbued with a kind of nervous wish-fulfilment aligned with age-old humanist ideas that *we can think our way out of anything*, though made literal through Eddie's superhuman intelligence. In other words, when everything is precarious and at stake, what is scarier than it stopping, but stopping without an answer?

To this extent it is noteworthy that a critique of America present in the novel is absent in the film. In the novel, the murder Eddie becomes embroiled in is not that of a socialite as in the film, but Donatella Alvarez, wife of a famous Mexican painter. They have a conversation:

'That's ironic,' the salt-and-pepper guy was saying to someone, 'the *choosing* of a better future.'

'What's so ironic about that?' I heard myself saying, and then sighing impatiently. 'If *you* don't choose your future, who the hell's going to do it for you?'

'Well,' said Donatella Alvarez, smiling across the table – and smiling directly at *me* – 'that is the North American way, isn't it, Mr Cole?'

'I beg your pardon?' I said, a little taken aback.

'Time,' she said calmly. 'For you it is in a straight line. You look *back* at the past, and can disregard it if you so wish. You look *towards* the future...and, if you so wish, can *choose* it to be a better future. You can choose to *become* perfect...'

'For us, in Mexico [...] the past and the future... *they co-exist*'.<sup>35</sup>

---

<sup>35</sup> Alan Glynn, *Limitless* (first publ. in 2001 as *The Dark Fields*, p.154.

Alvarez's assessment sums up not only the problems of American neoliberalism but also the problems of the neuro-turn and the discourse of enhancement-as-route-to-improvement. Despite its absence, her critique is even truer of the film; Eddie does not contend with the past, rather the plotting thrusts forward and enables Eddie to 'disregard' it at will. In the book, as in the film, Eddie is similarly able 'to look to the future with such energy', but this unbridled futurism is ultimately contained in the novel by Eddie's self-destructive ending.<sup>36</sup> This is completely absent from the film. As with the media headlines that begin this chapter the discourse of neuroplasticity promises the ability to re-wire the past (through the childlike ability to adapt) and choose your future (through the potential of cognitive enhancement). This kind of ideology is reflected most clearly in the film's ambivalent response to crime and criminality, which I argue creates an ethical void in criminal responsibility barely concealed by the sparkling veneer of enhancement.

That the plastic narrative of *Limitless* demands expansion is in keeping with Lee Horsley's summation of contemporary crime narratives: 'the sheer proliferation of goods to accumulate and the excesses of individual self-enrichment have fed a growing body of crime literature satirizing contemporary society and elaborating the relationship between crime, commercialism, and consumption'.<sup>37</sup> As with Martin Scorsese's *The Wolf of Wall Street* (2013), *Limitless* explores this consumerist self-enrichment, but as much through neurobiology as money and power. *The Wolf of Wall Street* is a useful comparison for

---

<sup>36</sup> Ibid. p.145.

<sup>37</sup> Lee Horsley, *Twentieth Century Crime Fiction*, p.184.

two main reasons. First, both films share the same facetious tone with regards to criminality. Second, though only receiving a reduced sentence after testifying Jordan Belfort does serve time in prison, Eddie does not. In *Limitless*, there is illegal drug use, theft, murder, violence, insider trading, obstruction of justice, and racketeering. There is a systemic quality to criminality here that depicts a vision of society as being unable to make distinctions between the legitimate and the illicit, the lawful and the unlawful, and the ethical and the unethical under the commercialism and consumption that drives the capitalist narratives Horsley describes. Further, *Limitless* goes beyond the cultural purchase of satire. Nothing or nobody is shamed because the endemic nature of criminality and the centrality of Eddie's rapid paced subjective narrative places much of the plotting beyond ethical reproach. As such, the film's criminal activity trades more on caricature and farce than containment and punishment. Driven by both the plastic narrative, and the cheeky, collusive nature of Bradley Cooper's star-vehicle role in the film, criminal activity is quickly rendered humorous.

The film uses visual counterpoints to significant and humorous effect. For instance, when police question Eddie after being found in the apartment where Vernon had been killed, the colours in the police station are in the darkened grey-scale that associate with the instances where Eddie is not enhanced (fig 15). Sitting at a level below the detective, nervously wringing his hands, and fumbling his explanations with excessive fillers, Eddie is depicted as being at the mercy of the disciplinary power of the detective. The detective's phone rings and it is Melissa, Vernon's sister and Eddie's ex-wife, the detective then passes Eddie the phone and he begins speaking to her (fig. 16). Eddie's brow is noticeably sweating, his face is half

concealed by shadow and his eyes are dull. In stark contrast, when enhanced-Eddie notices the same detective sitting nearby during a business meeting later in the film, Eddie approaches him in a cavalier manner and says: 'I thought we'd straightened this out, detective' (fig. 17). Here, Eddie remains standing whilst having his back turned to the detective and checking his phone. There is none of the previous nervous fear, in fact, that Eddie is blasé, sparkly-eyed (fig. 18), and this time framed by the warm background colours invites us to collude in his flippant treatment of his criminality, despite the fact he is being linked to the murder of socialite Maria Winberg.



*Figure 15* – Unenhanced Eddie being interviewed by a detective in shadow.



*Figure 16* – Eddie furtively talking to Melissa in the detective's office.



*Figure 17* – Enhanced Eddie nonchalantly talking to the detective.



*Figure 18* – Enhanced Eddie confidently facing the detective.

During a blackout, Eddie sleeps with Winberg and discovers the next day that she has been found murdered in her hotel room, he is unable to remember the nature or extent of his involvement. The detective tells Eddie that a witness



identified him as the man leaving Winberg's hotel room. This contrapuntal style continues when the above scene (fig 17, 18) cuts to the outside of a police precinct with Eddie's narration explaining: 'I couldn't keep this quiet on my own. Enter Morris Brandt, the most lethal lawyer in New York'. The pair enter the precinct and then immediately leave again, as if stuck in a revolving door. This elliptical editing not only has the effect of bolstering the hastening plasticity of the narrative, but also renders the possible criminal involvement at the level of plot. The moment Eddie recognises the officer staring at him to Eddie and Morris leaving the precinct lasts only fifty-three seconds.

Eddie is later called into a police line-up. He enters the precinct and Brandt makes clear he has stacked the odds in Eddie's favour by arranging that the other men closely resemble him, in his words: 'it's gotta be just one big handsome blur' to the witness. Mimicking the window reflection before the blackout during which Winberg's murder occurs (fig. 12) and his political success in the epilogue (fig. 14) we again see 'multiple Eddie's' positioned inline (fig. 19). Framed in a wide shot between two similarly looking men, Eddie stands in the line-up and, as the shot becomes a close-up of his face, his narration asks: 'was this how it was all going to end?'. It is not. Instead, the revolving door policy where the stakes of liberty are never actually in question is little more than a humorous farce. Brandt comes out explaining that the witness had not the 'dimmiest clue' and compliments Eddie's suit jacket before Eddie leaves free of charge. He is in the precinct for sixty-five seconds. Each of these two scenes stall the plastic narrative's pace, but only as if little more than tedious errands, and combined, Eddie's formal and legal involvement in the murder of Winberg is wrapped up in just under two minutes.

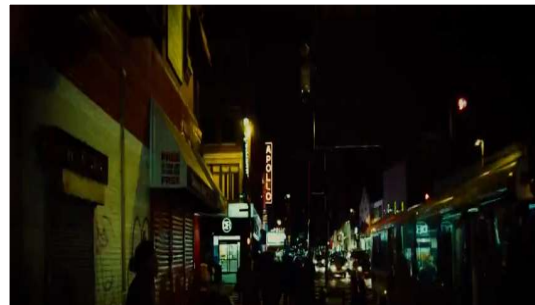


*Figure 19 – Eddie standing in a police line-up.*

However, it cannot be ignored that Eddie's involvement in murder remains unexplained and possible. I argue the blackouts work to conceal the void in Eddie's ethical and moral responsibility. In the Winberg blackout scene, the forward-momentum tracking shot seen in the opening (fig. 20), is repeated at a much faster speed (fig. 21) but here lasts for the entire scene. Through the effects of NZT the plasticity of the narrative itself seems concerned with concealing Eddie's misdeeds, eliding the crimes within the incessant pace.



*Figure 20 – The opening tracking shot roving through New York.*



*Figure 21 – Subsequent repetition of the tracking shot in the same location.*

This repeated tracking shot fits into a broader motif of doubling. Arguably, doubling is more typical of the exploration of psychological/psychoanalytic depth models in films such as in Alfred Hitchcock's oeuvre, than neuro-thrillers such as

*Limitless* that have a neuroscientific underpinning.<sup>38</sup> However, I argue the multiple/double images of Eddie and the accelerated blackout passages are signifiers of Carl Jung's conception of the shadow self. These, I argue can be read as phantom symbols of a psychological model of subjectivity which repeatedly and momentarily reveal voids in Eddie's ethical responsibility. For Jung, the shadow is the 'dark aspects of the personality' that remain unconscious but affective until such aspects are recognised 'as present and real'.<sup>39</sup> However, Eddie's enhanced plastic subjectivity does not recognise these, opting instead for metamorphosis and expansion into the future via NZT, rather than introspective psychological paradigms that would see him repeat to learn from the past. NZT allows him a subjectivity that can disregard the past and his own ethical responsibility providing he remains in an enhanced expansive state: this is a neoliberal implantation of enhancement.

This is why NZT enhancement and the film's plastic narrative are allergic to inertia, both requiring momentum to keep expanding forwards. By reading these blackouts as neurological attempts to conceal the unethical aspects of his subjectivity, not only from himself but from others (including the viewer), and by reading the colour, humour, pace, and plotting of the film as veneers concealing his misdeeds, it is notable that his shadow-self becomes apparent when he subsequently undergoes one of the longest periods off NZT. In this period, Eddie recedes, not to a non-enhanced self and subjectivity (because this previous self has 'plasticised' beyond return), but to an even baser self, bearing no resemblance to the hyperreal

---

<sup>38</sup> Hitchcock uses doubling in many of his film, most famously in *Vertigo* (1958) whereby doubling and repetition visualise and narrativize Freud's ideas of uncanniness and the compulsion to repeat. *Vertigo*, dir. by Alfred Hitchcock (Paramount Pictures, 1958).

<sup>39</sup> C. G. Jung, *Aion: Researches into the Phenomenology of the Self*, trans. by R. F. C. Hull (New York: Pantheon Books, 1959), p.8.

colour of enhanced Eddie's eyes. The scales fall and the viewer briefly sees behind the cognitive curtain, much as the world briefly saw the destructive emptiness of neoliberal economics during the recession. However, it is only ever temporary, as Lindy, who is herself now high on NZT, manages to revive Eddie with a new dose. They check into a hotel and enhanced-Eddie wakes up blue-eyed, smiling, and bathed in light (fig. 22). Lindy looks concerned, and Eddie apologises and tries to reassure her and says: 'I'm back, ok?' Lindy asks: 'Who's back' stating that she was not the same person when she was on NZT because 'she did things [she] would never do'. As with Melissa, this marks the difference between the two; though she felt 'invincible', the lack of control and ontological risk scared Lindy away from NZT in a way in which Eddie refuses to grasp. She recognises the dark (unethical) aspects of enhanced subjectivity in a neoliberal mode; Eddie does not.



*Figure 22 – Enhanced Eddie basking in morning sunlight.*

This difference, in that Lindy is immediately scared of the invincible fearlessness brought by NZT where Eddie is spurred on by it, manifests most dramatically in the apartment fight/massacre that takes place after Eddie's opening suicidal summation that he had 'miscalculated a few things'. By usual generic conventions this scene should mark the end to Eddie's enhancement narrative. In it, murderous Russian loan sharks hound him in his newly bought and barely unpacked apartment, an apartment

in which the only actions the viewer sees are near-suicide, murder, and blood drinking.

After a misstep on the ledge, Eddie retreats and his narration advances beyond the film's opening discussion of suicide, explaining: 'but we're instinctive creatures. We want to live. So my foggy brain tried to remember where one tablet of NZT might be. It was possible. And possible was enough'. This idea of possibility goes to the root of the neural implantation of enhancement in this film, which is underpinned by the promise of a neoliberal potential to better yourself at a neuromolecular level. Indeed, after successfully escaping the apartment and stealing back the NZT, Eddie repeats this mantra of potentiality stating: 'and it was all still possible', before cutting to his successful twelve months later. However, much like Eddie's question when he asks himself, 'was it possible? Could I have killed someone?' in relation to Winberg's murder, the lengths Eddie goes to in this scene in securing the potential offered by NZT highlights the extremely problematic ethics of a neoliberal implantation of enhancement.

I focus on the blood-drinking because it is truly abject in a film otherwise rendered so vibrant and facetious in its treatment of crime and immorality. The only other abject instance is when Eddie receives a severed hand in a box, which is itself parodied immediately after the blood drinking scene when a loan shark opens Eddie's safe and finds it posed, middle finger up. Having found a single remaining NZT pill, Eddie is startled into dropping it down the a grate when the loan sharks burst through Eddie's door. He makes for the ledge again (thinking suicide by pavement to be better than torture) but is caught. Beaten and placed on a chair, Eddie grabs a wrapped

kitchen knife whilst the loan shark is distracted and thrusts it into the enhanced Russian's stomach. In fig. 23 the difference between enhanced-Eddie (fig. 22) and basic, withdrawing Eddie is evident. Wild-eyed, blood-spattered, and pallid, the hyper-real sparkle indicative of enhanced Eddie is replaced by something akin to Dorian Gray's picture, his face fills the screen and is one of absolute desperation as he brutally kills the loan shark.



*Figure 23 – Unenhanced Eddie killing the loan shark.*

With two remaining loan sharks searching his bedroom for NZT, Eddie sinks to the floor parallel to the dead Russian. As with the previous instances in which Eddie's plastic narrative could stall (suicide, police line-up, temporal blackouts), Eddie is not particularly self-reflective but regretful only that he will not be able to continue progressing and enhancing: 'not much of a triumph, was it? Because I would die here, too. Only NZT could help me and the last of it was in this fuck's blood stream'. The suggestion of ingestion initially seems an unsurmountable hurdle even for Eddie's desperate situation as he immediately flinches away from any contact with the body.

However, as the loan shark's blood slowly pools towards him (fig 24), we see again the same doubling effect as seen in the shop window (fig 12) and elsewhere

(fig. 14 and fig. 19). However, here both Eddie and his reflection are static with the implication being that Eddie's choice is drink or die, if he does not ingest the blood *his* plastic narrative will remain static and inert, whilst the expansive, pooling NZT riddled blood will pass him by along with the promise of enhancement. This scene in which Eddie lies flat on the floor, with the blood inching horizontally towards him is a visualisation of the 'flattening' effect Nikolas Rose describes as indicative of the turn toward bio-material models of subjectivity.<sup>40</sup>



Figure 24 – The loan shark's blood pooling towards Eddie's face.

Living in a penthouse apartment, diving off a cliff, and working in skyscrapers are *trompe-l'œils* that only highlight the superficiality of Eddie's personal depth; there is no psychological complexity to traverse in what may be his death scene. Here the epistemological distinction between cultural/psychological models of self-formation that are a messy imbrication of past, present, and future self as Alvarez remarks in the original novel, as well as the kind of 'personal manifesto' pre-enhanced Eddie describes his book to be, is effaced by only the chemical 'instinct' to survive. Being so close to death, Eddie is only able to mourn that which has not yet come to fruition. Indeed, newly enhanced-Eddie explains this point earlier in the film. Talking to a man

---

<sup>40</sup> See my discussion of Rose's 'neurochemical selves' in the introduction.

about the stock-market, the man says that there are safeguards that prevent stock devaluation, Eddie replies, 'Against over-expansion? There aren't. Because there are no safeguards in human nature. We're wired to overreach'.

With little reluctance, he inches his mouth towards the blood in an image reflecting a grotesque narcissistic kiss, and desperately 'overreaches' by slurping up the blood (fig. 25). There are many reasons this act is abject. For one, while drinking blood may be a mainstay of contemporary gothic and supernatural stories, any explanation or association with vampirism here is unsupportable. Eddie may have sparkling eyes but he is no contemporary vampiric figure; here, he is a drug-addicted man near death unless he ingests NZT through drinking somebody's blood. Moreover, it is difficult not to associate HIV/AIDS with this scene for two key reasons. First, the most prominent antiretroviral medication used to combat the virus is Zidovudine, more commonly known as AZT. Second, thousands of recent deaths, multiple high-profile lawsuits, and institutional cover-ups have been witnessed on both sides of the Atlantic regarding 'contaminated blood'. This is a biopolitical scandal that began during the 1970/80s which saw typically higher-risk demographics such as drug-users paid in the USA for blood donations, which were then used to make blood-clotting agents to treat haemophilia in the USA as well as being sold to the UK's NHS.<sup>41</sup> Though it is undoubtedly true and commendable that since this time the stigma of the disease has dramatically decreased, this phantom but affecting history of contaminated blood, when coupled with the aurally similar drug names,

---

<sup>41</sup> Nick Trigg, 'What is the contaminated blood scandal?', *BBC*, 14 June 2019 <<https://www.bbc.co.uk/news/health-48596605>> [accessed 12 February 2020].



renders this blood scene (problematically) abject and is an indictment of the lengths Eddie will go to retain enhanced subjectivity.



*Figure 25 – Eddie slurping the loan shark’s blood.*

Further, given the discussion about the theoretical use of Jung’s shadow self in relation to the blackouts, typical drug-narratives would ordinarily fork at this moment. Either the protagonist would die or subsequently have some kind of turning point/anagnorisis. Neither happens because he lacks both framework and real psychological depth. Rather, the presence of enhanced subjectivity in the narrative alters generic expectation: the enhanced transhuman abilities afforded by NZT continually prevent the biological threat of death. According to Jung’s theory, Eddie cannot make the necessary ‘moral effort’ to change because he is afforded no real moral depth.<sup>42</sup> Unable to recognise ‘the dark aspects of [his] personality as present and real’ or challenge his enhanced ethical shortcomings, Eddie’s shadow self that is both caused and concealed by NZT – as reflected in the blood – remains both a psychological phantom *and* a symbol of plastic potential to be imbibed. The reflection is the immaterial dark psychology he needs to address but no longer can because enhancement has now evacuated his morality, while the blood is the material

---

<sup>42</sup> Jung, p.8.

promise of enhancement that is still available. The intimacy between the two Eddies, the near-death Eddie, and the enhanced 'possible' Eddie that exists in the reflective blood, here is equally abject. Despite Eddie's almost novelistic narrative voice guiding the film's narrative, a device usually employed to highlight mistakes, regret, or foolish choices the film refuses the typical models through which ethics are explored in cultural narrative. There is no introspection, self-awareness, or historical flashbacks of the problems that enhancement has produced, just more metamorphosis, expansion, and here literalised self-absorption.

In the baseness of drinking another's blood to survive, any superior status that the enhanced-Eddie believes he possesses momentarily disappears. As mentioned with reference to Jeffrey Weeks in the introduction, the neoliberal project works by way of ostensible liberal inclusion with its putative promise of not mattering who or what you are providing you are economically viable. Indeed, this idea is intensified in the blood scene in that biological parity is found at a molecular level, blood, it seems, is blood, and NZT is NZT, and Eddie chooses to drink. However, Weeks also highlights that the individual (and neoliberal) promise of free choice threatens to create an 'ethical desert', and the immediate aftermath of this blood-drinking agrees with this completely. The ingestion of NZT returns Eddie to an enhanced state that is vastly superior to the Russian loan shark's (who being Russian retains stereotypical broken English despite Eddie's polyglot ability on enhancement). In other words, as with other neural implantations, Eddie's is predicated on prejudice, but stacked in his favour as a white, heterosexual, middle-

class American man.<sup>43</sup> Further, the blood drinking becomes visually excused as a horrible necessity, given the expansive plastic narrative will not permit a full stop which is evident as soon as the fight is over. Eddie picks up his suit jacket and leaves his body-strewn apartment (fig. 26), mirroring the scene in which he avoided being picked in the police line-up (fig. 27). As before, there is no time for introspection or ethical recognition only the continued march towards expansion, to over-reaching, despite that fact he has just killed people and considered suicide.



*Figure 26* – Eddie leaving his body-strewn apartment.



*Figure 27* – Eddie leaving the police precinct.

There is no ethical or moral lesson for Eddie. He leaves the apartment, finds Atwood's henchman in the hospital and informs him that Brandt (both Eddie's and Atwood's attorney) kept the NZT pills to himself. The scene then cuts to Atwood's henchman watching the tied up (and presumed dead) Brandt in his apartment, whilst Eddie rummages through the safe to find the NZT pills (fig. 28). This mirrors the initial scene in Vernon's apartment that set this plastic narrative into action. There, Eddie returns from running errands to find Vernon dead and manically tries to find the NZT pills stashed in Vernon's oven; here he re-finds the pills and is again surrounded by a body.

---

<sup>43</sup> It is worth remembering here the idea that material and 'objective' scientific models of selfhood are always enmeshed in social and cultural narrative scripts. In belonging to this privileged political category, and in being the one character who can maintain enhancement is indicative of the ethical problems enhancement could create: an entrenchment of privilege at the site of the neuromolecular brain.

This would mark the usual desperate ending to a typical drug narrative: the suggestion of endless illicit desperation until rehabilitation or death.<sup>44</sup> However, this narrative is neither reflexive nor properly cyclical but plastic, which therefore does not make room for an elliptical ending because in such a model there is no real narrative past to return to because it has plastically changed form. Instead, we hear Eddie's narrative state: 'and it was all still possible'. The scene then cuts to the glossy colour of Eddie's continually enhanced future, in which he has political influence, his girlfriend, his transhuman enhancement, and zero comeuppance. With such lofty examples of destruction delivered by himself during the film, such as the fall of European empires or his symbolic alignment with Caesar, the epilogue is testament to enhanced-Eddie's ability to buck the trend of human nature itself; he continues to over-reach with impunity.



Figure 28 – Eddie re-finding the NZT a wardrobe.

In the timeline of enhancement narratives, *Limitless* already represents something that is of its time. While neoliberalism is still the hegemonic model, Eddie's incessant forward march and his endless reforming to overcome hurdles, plays like a final death knell to the vision of enhancement and plasticity it portrays. Indeed, though the viewer is at times entranced by Eddie's enhancement, his single-

---

<sup>44</sup> Irvine Welsh's *Trainspotting* (1993) and Danny Boyle's film adaptation (1996) of the same name encapsulate these narratives.

minded focus on futurity becomes wearing. With no narrative break or real conflict, the epilogue can be read as an endless eulogy of this ideological and ontological neoliberal mode.

As a different period of politics emerges, in part because of the ideological fatigue of neoliberalism, different biopolitical imperatives and ideologies may come to bear on how we understand enhancement and enhanced implantations. For one, if neoliberal enhancement prioritizes the self as individual and constructs enhancement to be an internal process as with Eddie, other narratives look outside of the self and are reflective of a collective understanding of plasticity. In other words, this is neuroplasticity as referring to changes in the brain that result from the social or environmental that lead to ontological shifts. For another, as enhancement becomes increasingly possible more insidious forms of biological elitism in terms of who deserves cognitive enhancement, and debates about the personhood status of those who do, and do not, may emerge. Finally, new forms of biological scepticism or misrepresentation, deployments or withdrawals of science for ideological use, such as in racialised Trumpian politics or the scepticism towards vaccination, could impinge on the kinds of neural implantations of cognitive enhancement produced.

Thus, in a timeline of fictional enhancement there is first the non-agential 'improvement': a superhero bitten by a spider, a pathology cured by a rogue scientist, or biopolitical improvement of a population. Second the neoliberal caste: the DIY agential choice to improve such as through pharmaceuticals of brain training (that is as far as agency is available in a wholly neoliberal society), to take the pill, to train your brain. More recently, enhancement narratives seem to oscillate between three

oppositional ideologies, one that is social, one that is elitist, one that is protectionist. These types of enhanced subjectivities I now explore in the posthuman narrative of *Nexus*.

### *Nexus*

Ramez Naam's cyberpunk/neurothriller trilogy explores the fictional drug Nexus 5, which alters brain chemistry and enables humans to link together at a cognitive/psychic level. *Nexus* offers insight into some key questions of cognitive enhancement and the ontological and subjective changes neural implantations elicit. Eddie's plastic subjectivity and narrative is not present here; rather, *Nexus* imagines a world in which the idea of general human life and the concept of humanism is an evolving narrative in its own right. My focus is on the first book, *Nexus*, because it foregrounds debates about neuro-enhancement and ideas of posthumanism before they become overly naturalised in the speculative world. Naam himself is a computer scientist and post-humanist, writing in 2005 the non-fiction book *More than Human: Embracing the Promise of Biological Enhancement*. I note above that Eddie represents a transhuman by means of his cognitive enhancement. Transhumanism and posthumanism are slippery terms, but, there is a common and key difference that runs between the two in critical theory. Transhumanism does not do away with the notion of the human or its values or position in the world, seeking instead to enhance and improve upon it through science and technology.<sup>45</sup> In contrast, posthumanism does seek to go beyond/replace understandings of the human,

---

<sup>45</sup> See Francesca Ferrando, 'Transhumanism/Posthumanism', in *Posthuman Glossary*, ed. by Rosi Braidotti and Maria Hlavajova (London: Bloomsbury, 2018), pp.438-9 (p.439). David Roden, *Posthuman Life: Philosophy and the Edge of the Human* (Abingdon: Routledge, 2015), p.13.

collapsing its long-standing and self-appointed biological dominance, removing its individualism in favour of interconnection to others, and understanding information patterns over corporeal materiality. Eddie's enhancement does not efface humanist values or its hierarchical position in the world, but rather intensifies what is already there. While transhumanism seeks to improve upon the human condition through enhancement, the problem in *Limitless* is that what is already there is a world in which crime is endemic and neoliberal tenacity is rewarded. So, while his intellect is heightened, so too are the politics and ramifications of neoliberal individualism. In *Limitless*, neurobiological technology and political stakes expand together into a transhuman compact.

Posthumanist thought rejects this continuation and enhancement of the human. In Rosi Braidotti's words, posthumanism is a 'vital materialism' that 'contests that arrogance of anthropocentrism and the 'exceptionalism' of the Human as a transcendental category. It strikes an alliance with the productive and immanent force of *zoe* or life in its non-human aspects'.<sup>46</sup> It seeks to use technology to undermine the era of the Anthropocene and level out the biological playing field across *all* forms of life. Less philosophically, posthuman can also refer to a threshold state of technological enhancement that renders the human no longer recognisable as such, whereby they have become post-human. Theoretically, this type of posthuman can be arrived at through originally transhuman enhancement, as is the case in the film *Lucy*.<sup>47</sup> Braidotti is acutely aware of the technological problems facing her posthuman aims. Not only does my analysis of Eddie's plastic narrative show that

---

<sup>46</sup> Rosi Braidotti, *The Posthuman* (Cambridge: Polity Press, 2013), p.66.

<sup>47</sup> Ferrando, p.439.

enhancement only intensifies existing biopolitical imperatives of individualism (thus nullifying posthuman collectivism), but common cultural representations of man-melded-to-machine act often only to re-affirm man's ontological superiority, in Braidotti's words 'reasserting transcendence via technological mediation', and nullifying the rejection of human exceptionalism.<sup>48</sup>

Braidotti explains that posthuman thought must neither wed itself to 'hyped-up disembodiment and fantasies of trans-human escape' nor human ideals of liberal individualism.<sup>49</sup> She calls for 'radical relationality, including webs of power at social, psychic, ecological, and microbiological or cellular levels' but stresses that these cannot spring from the 'current state of the terrain', but through 'embracing an ethics of experiment with intensities'.<sup>50</sup> For Braidotti, posthumanism is 'a unique opportunity for humanity to reinvent itself affirmatively, through creativity and empowering ethical relations, and not only negatively through vulnerability and fear'.<sup>51</sup>

Whilst partially guilty of 'hyped-up disembodiment and fantasies of trans-human escape' *Nexus* considers many of these affirmative posthuman themes. *Nexus 5* is the name of an illegal nano-drug that makes the brain receptive to other brain signals, enabling the sharing of communication and experience. Kade is a budding neuroscientist who illegally experiments with the drug, believing in its capacity to change the world through enhancing the interconnectedness of emotion and empathy. Sam, an enhanced Emerging Risks Directorate (ERD) agent, busts Kade and

---

<sup>48</sup> Braidotti, p.102.

<sup>49</sup> Ibid.

<sup>50</sup> Ibid.; p.195; p.190

<sup>51</sup> Ibid. p.195.



his friends in an undercover sting. The ERD is a branch of the scientifically conservative US-government policing posthuman technology. Kade's bust allows the US government to intervene in the more scientifically liberal China, particularly in regards to prominent neuroscientist Shu, who they suspect of involvement in assassinations and illegal posthuman technology. To save his friends from prosecution, Kade agrees to help the ERD and travels with Sam – newly implanted with permanent Nexus 5 – to a neuroscience conference in Bangkok. Kade meets with Shu who discovers his true motives through the enhancement afforded by Nexus 5. She offers him a position in her lab and implants false memories so Sam and the ERD do not find out. As the plot develops, Sam's certainty regarding her disgust of Nexus-like drugs wanes, and through ambushes, fights, and chases, she and Kane learn more about the possibilities and dangers of the drug. In the end, the ERD invade a Thai monastery to recapture Kade and Sam and neutralise the threat of Nexus 5. Shu is killed, Sam and Kane escape, and Nexus 5's pharmacological makeup is released online.

It is crucial to highlight that *Nexus* is speculative. In *Archaeologies of the Future*, Fredric Jameson argues that speculative fictions actually do greater cultural work to 'defamiliarize and restructure our experience of our own *present*' than the presentation of images of what the future might be.<sup>52</sup> In *Nexus*, the reader glimpses a 'utopian' future which is, as suggested in Naam's author note 'the science of Nexus', grounded in present scientific reality. However, it is not the sketched utopian possibilities that inform our understanding regarding cognitive enhancement, so

---

<sup>52</sup> Fredric Jameson, *Archaeologies of the Future*, p.286 [italics in original].

much as what these inform us about present reality. This is because speculation is produced in the foundations of real contemporary biopolitics. Thus, following Jameson, speculative fiction like *Nexus* is useful for analysing neural implantations of enhancement because it offers an inverse model to that which typifies neuroscience and medicine. Contemporary neuroscience and medicine are narratives built on general promises of technology, cures, and pharmaceuticals, and thus are less invested in narratives that imagine possible subjective effects. On the other hand, I argue that fiction imagines futures to understand the biopolitical imperatives and ideologies that produce the enhanced subject to be such a common and powerful discourse in contemporary society. As a result, I argue that *Nexus* highlights the ideological crossroads at which we find ourselves today. In an age where what we are, how we think, and what we are classified as are increasingly informed by materiality of the brain, real world shifts in ideologies and biopolitics could have dramatic impacts. These contemporary concerns are reflected in *Nexus's* explorations of reactionary populism in the ERD, Kade's hopes that his drug will create a collective, empathetic world, and through posthumanism and the problems of hierarchy.

In the novel, the USA is now (far more) scientifically conservative after a series of shocking misuses of science and technology. 2028 saw the Yucca Grove cult maintained by the Communion virus, which causes mind-control/enslavement; in 2029 there was a deadly computer attack; and in 2030 there was the Aryan Rising, an attempt to destroy humanity through the Marburg virus and repopulate the world

with 'genetically engineered neo-Nazi transhumans'.<sup>53</sup> Many people died, 128 Marburg-resistant clones were discovered, and public mood shifted towards restriction of scientific research on 'genetics, cloning, nanotechnology, artificial intelligence, and any approach to creating "super-human" beings'.<sup>54</sup> The outcome was the passing of the Chandler Act in 2031 establishing the ERD – part of Homeland Security who supersede regular legal rights and brand persons or organisations 'emerging threats' without protection of speech or trial by jury. The Act also paved the way for the 2035 Copenhagen Accords on Global Technological Threats, a treaty designed to restrict and closely monitor biotechnology and molecular medicine.

*Nexus's* imagined China, and the East generally, is more liberal. The novel's Thai neuroscience conference typifies this, with many of the banned subjects in America, such as AI, on proud display. Hence Kade's summation: 'no wonder the international meeting trumps the US neuroscience meeting these days [...] The cutting edge stuff isn't legal at home any more'.<sup>55</sup> Shu marks the difference more clearly in her meeting with Kade. Through their Nexus 5 connection, Kade asks: 'why not come to the US?', Shu replies: 'I'd be even less free in your country. My government doesn't object to posthumans, so long as the first posthumans are Chinese. They want control. Fools. As if such beings will be bound by nationality'.<sup>56</sup> The parallel is clear, like the Space and Arms races that dominated much of the latter half of the twentieth century, in this novel this century's race is speculated as a race

---

<sup>53</sup> Naam, *Nexus*, p.85.

<sup>54</sup> *Ibid.* p.86.

<sup>55</sup> *Ibid.* p.155.

<sup>56</sup> *Ibid.* p.226.

to human enhancement, certainly not entirely stranger than fact given DARPA's research interests such as their headband to increase learning speeds.

What both restrictions and the conference proceedings highlight is that, in the future, enhancement has become discursively and materially proliferate. The ERD enhance officers like Sam into transhumans in order to fight fire with fire and prevent similar or more powerful technologies spreading in public. Moreover, a chapter titled: 'The Bazaar of the Bizarre' sees Kade and Sam walking through a Bangkok street that is essentially bio-enhancement:

The first few stalls were reproductive services. Sex selection. Ova selection to make a child from two mothers, no father necessary [...] Reprogeneics gave way to bio-cosmetics [...] Fat cutters. Fat boosters. Nordic cheekbones. Square jaws. Almond-eye shapes. Golden eyes. Cat-slit eyes. Hair curling viruses. Hair strengthening viruses [...] Bio-cosmetics gave way to bio-erotics. Booths offered viral gene injections to deliver enlarged or firmed "natural" breasts, larger pansies [...]. Bio-neurals followed bio-erotics [...] Sexual orientation shifters in temporary and permanent varieties. Savant drugs to put the customer in a hyper-productive or hyper-creative trance. [...] The modifications on offer become progressively more extreme as they neared the end of the market. Muscle grafts [...] Genetic gender reassignment. Supercharged haemoglobin.<sup>57</sup>

The enhancement options appear limitless, and though Kade and Sam are told that some may be fake, most are effective. However, because 'there's no FDA on this street' certain treatments are dangerous, 'sometimes they miss the gene they want, you know? Break something else. Cancer, maybe'.<sup>58</sup> Cosmetic surgery has given way to cosmetic swallowing, sexual orientation has become a biological choice, savant drugs (akin to Eddie's first use of NZT where he is able rapidly to write his book) are commonplace, gender is re-assignable at a genetic level, and muscles and molecules

---

<sup>57</sup> Ibid. pp.243-6.

<sup>58</sup> Ibid. p.244.

can be enhanced far beyond natural biological capacity. In other words, not only have the neuro-turn and neuro-enhancement become a new normal in this future, but so too have new classifications of neural implantation. It is no longer the splitting and differentiation between humans, but the splitting and differentiation of human. Though the novel does account for the subjective changes brought by enhancement, its main concern regard categories of personhood because the ontological shifts brought by enhancement have produced not only new subjects and bodies, but new parameters of personhood.

The novel clearly details this speculative future's definitions of trans- and posthuman by fictionalising results from the 2036 Oxford English Dictionary:

Transhuman – *noun* –

- 1) A human being whose capabilities have been enhanced such that they now exceed normal human maxima in one or more important dimensions.
- 2) An incremental step in human evolution

Posthuman – *noun* –

- 1) A being which has been so radically transformed by technology that it has gone beyond transhuman status and can no longer be considered human at all.
- 2) Any number of species that succeeds humans, whether originated from humanity or not.
- 3) The next major step in human evolution.<sup>59</sup>

Naam's decision to fictionalise dictionary results (that are notably like contemporary definitions) allows the novel's technical definitions to seem to be objective, which has two main effects. First, the definition's general nature allows the reader to consider these terms from a distance; the definitions puncture the narrative, are outside of the plotting, and come between the first and second chapters under the

---

<sup>59</sup> Ibid. p.26.

heading 'Briefing'. This puncturing style recurs throughout the novel in order to detail important (speculative) historical events, meanings, and legal cases, to mediate the gap between the readerly present and the fictional future. These are briefings to the reader, and act like guides for this fictional world. Second, and extending this, the objectivity reads diagnostically as much as definitional. Here, it is worth remembering the kind of phantom objectivity I explore in the introduction that underpins the legitimacy of neuroscience, medicine, and diagnosis today, and the kind of biopolitical 'fictions' Harari describes above. Indeed, subsequent briefings detail legal cases and events that seem ideologically to stem from proponents and opponents of enhancement/modification. As with other neural implantations, what appears to be objective and neutral (as this recourse to dictionary definition symbolises), are in fact intractably linked to a range of biopolitical imperatives and ideologies. Here, designations of personhood in relation to enhancement are not material or even based on some arbitrary threshold, but are politically and socially motivated, largely based on perspectives of fear and hope respectively.<sup>60</sup>

Enhancement is commonplace if illicit in *Nexus*, with proponents of posthuman development via Nexus 5 heralding it in evolutionary terms, as 'a quantum step in human cognition', and opponents prophesying misuse via 'suicide

---

<sup>60</sup> See for example the recent speculative hope associated with artificial intelligence that Jesus Mantas details in the World Economic Forum website. His hope for 'empathetic AI' aligns very closely with Kade's and is typical of the critical model of speculative fiction Jameson details. Jesus Mantas, 'Empathetic AI could be the next stage in human evolution – if we get it right', *World Economic Forum*, 2 July 2019 <<https://www.weforum.org/agenda/2019/07/empathic-ai-could-be-the-next-stage-in-human-evolution-if-we-get-it-right/>> [accessed 12 March 2020]. Compare this to the recent Western concerns over the UK's decision to allow the Chinese telecom firm Huawei to build the infrastructure for the 5G network, which is reflective of the novel's imagining of China's technological dominancy over a more sceptical West.

troops? Sex slaves? Worshipers?'.<sup>61</sup> The dividing lines are evident, with each side understanding the fracture as a battle for or against humanity. The 2038 Posthuman Manifesto proclaims that 'war between those who accept the limitations of "humanity" and those who embrace the power of the possible is inevitable', whilst a 2035 ERD position paper explains that they will grudgingly use transhuman technology on their own agents in order to maintain 'supremacy on the battlefield'.<sup>62</sup> I term this the 'posthumanhood wars'. In a 1999 journal review article, Theodore Fleischer coined 'personhood wars' to describe the tensions between 'personalism', where a claim to life is based primarily on cognitive abilities, and 'physicalism', where every human being is entitled to life.<sup>63</sup> My reading of *Nexus* and description of neural implantations of cognitive enhancement update this debate; it is no longer about the right to human-hood, but the right to posthuman-hood, that is to say the right to exist as something beyond the definition and capacity of human. It speaks to a growing body of cultural and academic work on the subject, and reflect the potential paradigm shifting end point of the neuro-turn and the neural implantation in which biotechnology and molecular medicine potentially see Rose's 'lessons from lesions' incrementally evolve into lessons from normality.<sup>64</sup>

In *Nexus*, pro-enhancement group Free the Future explicitly aligns the new 'War on Science' characterised by the formation of the ERD, with the history (our present) War on Drugs and War on Terror. They argue that like drugs and terror, a

---

<sup>61</sup> Naam, p.169, p.66

<sup>62</sup> Ibid. p.198.

<sup>63</sup> Theodore E. Fleischer, 'The Personhood Wars' *Theoretical Medicine and Bioethics*, 20.3 (1999), 309-318 (p.309).

<sup>64</sup> See this culturally speculated in *Black Mirror* and discussed in popular academic texts such as Harari's *Homo Deus*.

war on science will cause far more damage than the supposed threat could ever do.<sup>65</sup> Across the ideological barricades, legal action is quickly taken to enshrine US constitutional human rights to humans only, through which a 2036 Supreme Court ruling finds non-humans, by means of genetic manipulation, technological enhancement, or 'significant deviation from the existing spectrum of human characteristics' to be unprotected by the constitution.<sup>66</sup> In a contemporary reality in which 2017 (eighteen years after Fleisher's article) saw the United Nations condemn the UK government for failing to uphold disabled persons rights, the fictional speculation that neuro-typical, non-disabled humans will be forced to scramble to reaffirm their own protection (nineteen speculative years after the UN condemnation) seems unimaginable.<sup>67</sup> However, this is precisely the point. The privileged humanist who is able-bodied, neuro-typical, white, self-sufficient, can barely conceive of a narrative in which humanism is decentred, in much the same way as it has hitherto been difficult to imagine/conceive of anything but normative models of 'typical' cognition.<sup>68</sup>

As seen in *Limitless*, neoliberal biopolitics and ideology has entrenched this humanist belief, in which neoliberal man is the lone centre who decides what and who are his margins. Whilst NZT provides no means to move collectively beyond humanity, only to enhance and intensify its capacities and limitations on an individual

---

<sup>65</sup> Naam, p.241.

<sup>66</sup> Ibid. p.330.

<sup>67</sup> Patrick Butler, 'UN panel criticises UK failure to uphold disabled people's rights', *Guardian*, 31 August 2017 <<https://www.theguardian.com/society/2017/aug/31/un-panel-criticises-uk-failure-to-uphold-disabled-peoples-rights>> [accessed 22 July 2019].

<sup>68</sup> The neuro-turn and neural implantations have been instructive in this regard as neuroscience's focus on the atypical brain has seen cognitive difference proliferate in society and culture. Moreover, my argument that neural implantations contain capacity for resistance provides spaces whereby normative cognitive models can be challenged.



basis, Nexus 5 does, establishing a tension between 'types' of enhancement: individual or collective. The concern of those non-enhanced is reductions of status, hierarchy, and control. Traditional humanism considers rational man at the top, agential and a god unto himself. The US ERD deputy director Becker and the US President in *Nexus* are typical of this. Upon seeing evidence of people born with enhanced qualities, Becker panics and asks himself how this new 'subspecies' would 'treat the rest of humanity' and whether 'these freaks would turn his daughters into a new underclass'.<sup>69</sup> What is more, given the legal precedence against posthuman forms of life, the President is free to make 'the elimination of transhuman and posthuman threats one of his top national security priorities'.<sup>70</sup> The difference between the enhancement pills NZT and Nexus 5 is clear. The two drugs are metaphors for different kinds of ideology and their ingestion different kinds of enhancement implantations. The former works in line with neoliberal humanist tenets of individualism in which reason and purpose comes from within the self. Nexus 5 is a collective drug in which reason and purpose comes from without; indeed, with Nexus 5 the threat to the body politic is figured as a threat to the subject's political right to individualism and freedom that encapsulates the modern history of liberal ideology.

However, it is precisely on these same grounds that its proponents make its posthuman claims. The novel concludes with one of Kade's friends explaining that 'every attempt through history to limit the definition of humanity has been a prelude to the subjugation, degradation, and slaughter of innocents', citing the examples of

---

<sup>69</sup> Naam, pp.414-5.

<sup>70</sup> Ibid. p.442.

slavery, female subjugation, and Jewish persecution.<sup>71</sup> If the posthumanhood war theme oscillates between the extremes of evolution and destruction throughout the book, this final section advocating for enhancement has the last, decisive word: 'fight for what's right. Fight for your right to decide who and what sort of person you're going to be tomorrow, no matter what anyone else thinks'.<sup>72</sup> Braidotti may be right that successful posthuman development can only be secured away from the biopolitics of contemporary society; however, *Nexus* makes clear that in such a technological world, countries, ideologies, and leaders are powerless to contain single-minded and tech-savvy individuals. Here, the utopia of collectivity seems doomed to repeat the individual nature of man, whether human or supposed posthuman.

The specific subject of the posthumanhood wars in the novel centres on the drug Nexus 5. The reader first encounters the drug's effects at one of Kade's parties, which revolve around the recreational use of enhancement drugs. Titled the 'Don Juan Protocol', the opening has Kade 'immersed' in the Nexus operating system before engaging his 'body-control software', porn-bot Peter North, to improve his sexual prowess with a party guest called Frances. Likely intended to be humorous, the technology malfunctions and causes Kade to ejaculate prematurely and uncontrollably 'in bliss and confusion and hilarity'.<sup>73</sup> However, the situation is much more sinister: 'neither *Peter North* nor Kade were in control' as '[interference ERROR. . . ]' messages display while Kade's 'hands eased on Frances's head'.<sup>74</sup> Horrified,

---

<sup>71</sup> Ibid. p.513.

<sup>72</sup> Ibid. p.515.

<sup>73</sup> Ibid. p.16.

<sup>74</sup> Ibid.

Frances says: 'next time you wanna play rough, you *ask* first, asshole', before leaving. The implications are concerning, had Kade not ejaculated would he have raped her? Could we really say that Kade raped her? Was it 'Peter North'? Or the malfunction? This is but a fraction of the ethical dimensions Nexus 5 brings. Worryingly, Kade, a posthumanism advocate, thinks of the incident only mechanically: 'that didn't work so well'.<sup>75</sup>

In this imagined future, previous models of Nexus have each been classified illegal, similarly, Nexus 5 is an underground drug, developed illegitimately outside of biopolitical institutions by idealistic scientists such as Kade and his neuroscientist/DJ partner Rangan. In their eyes it is a social and collective drug, not a military weapon or lucrative market-stock. To overly simplify, if NZT and Eddie equate to cocaine and Wall Street, whereas Nexus 5 and Kade equate to LSD and parties.<sup>76</sup> This is most evident when Sam goes to Kade's illegal Nexus party, surrounded by tight pants, leather, tattoos, and 'biomorph' body art, she feels 'them all in her mind. Gay, straight, and bi; singles, couples, triads, more complex networks still. This boy-scientist has brought her into the heart of the counterculture. And the counterculture was dosed with Nexus'.<sup>77</sup> The countercultural origins are crucial to understanding the different enhancement narratives the novel is trying to create. Nexus 5 works antithetically to NZT, both physiologically and culturally. NZT is an extreme neoliberal stimulant that forces singlemindedness to the point of ethical bankruptcy, Nexus 5 is

---

<sup>75</sup> Ibid. p.17.

<sup>76</sup> These two reflect the two aspects of pharmacology and fictional representation today. On the one hand, *Limitless* reflects the need to enhance in order to beat the competitive race to the top. Whilst *Nexus's* collective aim, its countercultural opting-out, falls more in line with representations of micro-dosing such as in *The Good Fight* (King, 2017-), a legal TV drama, which, throughout its series conveys an entropic degradation reflecting the state of Western politics.

<sup>77</sup> Naam. p.43.

an extreme social relaxant that enables connectivity to the point of empathetic nirvana. It is in these enhancements that Kade and his friends make their claims (and stake their freedom) regarding the drug's posthuman possibilities.

Indeed, when Sam tells Kade during the bust that Nexus 5 can be abused to hurt people, Kade disagrees, explaining instead 'it's a way of bridging the gap between people. It makes us smarter together than we could be apart. It can raise our collective empathy'.<sup>78</sup> Kade's vision is one of networks, of a species-wide cognitive conversation replete with collective responsibility and respect. Nexus 5 here reflects technological forms of communication in present reality, such as Instagram and Twitter.<sup>79</sup> However, Sam's true ERD motive is revealed, and the collective bliss is ruined by the fact that Kade can coerce Sam into submission through Nexus 5, proving that there is a hierarchy of control. Kade continues his vision, stating that safeguards will be put in to ensure people do not hack the neuro-software, arguing people can already control planes and phones, so any argument about hacking should not be valid in terms of technological development. Kade's argument is difficult to accept; not only has Nexus 5 malfunctioned to the point of sexual assault, it has been used to coerce Sam's will: an action fundamentally oppositional to its stated aims.

However, the novel allows for a perspective that views these as teething issues in a much greater journey towards positive neuro-enhancement. Wade, an ex-military friend of Kade who has the Nexus 5 implant *feels* the bigger picture

---

<sup>78</sup> Ibid. p.65.

<sup>79</sup> A similar theme of neural connectivity/collectivity can be found in the *Sense8* (Wachowski, 2015-17), a television series about eight multinational strangers who become connected mentally and emotionally.

personally. He is wracked with empathetic guilt over his actions in war and through Nexus 5 has come to understand war's futility. After escaping Sam's raid, Wade makes it his mission to recapture Kade and 'keep Nexus 5 alive. He could hope to somehow get it out into the world. And if it got out into the world... It could change people. [...] The way the touch of another's mind through Nexus had changed him'.<sup>80</sup> *This* is a form of plasticity without neoliberalism; it is Malabou's hope of a giving/receiving of (neural) form without the co-option of endless expansion and the creation of selves-as-self-projects. However, throughout the novel, war (US ERD military division) continually destroys the collective moments in which Nexus's positive posthuman potential is explored. Sam's narrative arc encapsulates this, she goes from disgust and fear of Nexus's effects to a treacherous turn towards protecting Kade (and Nexus 5) at all costs, having grown to appreciate the hope, collectivity, and shared experiences of pain, which displaces her longstanding suspicion of enhancement.

Despite these moments of empathetic harmony, Nexus 5 is also terrifying. Shu, the posthuman neuroscientist who is integrated with Nexus 5 and other biotechnology hopes for posthuman revolution. Working to entice Kade to join her lab she details her three scientific goals: brain-to-brain communication, boosting human intelligence, and uploading minds to machines, aspects of which are currently being researched by DARPA.<sup>81</sup> For Kade, Shu 'would change the world. She would lift

---

<sup>80</sup> Naam, p.138.

<sup>81</sup> In 2019, DARPA released a report titled 'Six Paths to the Nonsurgical Future of Brain-Machine Interfaces'. One of DARPA's funded research divisions – dubbed the N3 teams – hope that success will result in 'wearable neural interface systems that can communicate with the brain from a range of just a few millimeters, moving neurotechnology beyond the clinic and into practical use for national security'. DARPA website, 20 May 2019 <<https://www.darpa.mil/news-events/2019-05-20>> [accessed 12 February 2020].

the human mind to new heights. He could be part of it. A posthuman, upgraded through her knowledge. It was intoxicating'.<sup>82</sup> The problem is that Shu, for all her collective aims, is even more problematic than Eddie in *Limitless*. She is a complete megalomaniac bent on posthuman domination. Sam comments on Kade's naivety throughout, and it is most clear in his Nexus 5 enabled conversations with Shu. He says Nexus 5 can enhance everybody, that 'this is about choice and freedom right? About everyone's potential'. She replies: 'the world needs new leaders, Kade. [...] After we tear down the old order, there will be a vacuum. Who will rule? Giving full power to everyone would be like putting guns in the hands of children'.<sup>83</sup> She further explains that in time some will be 'uplift[ed]' but that she and Kade will always be the 'elite'. A great irony of Shu's is that whilst she attempts to move beyond the human, which is to say both beyond older ideas of fatalism and beyond the liberal limits of the individual conception of the self, she returns to older notions of god-like supremacy in the form of Nietzsche's *Übermensch*. God is dead and humanism is dying; as the 2038 Posthuman Manifesto states: 'they will fear us for our greatness just as Nietzsche said they would fear the *Übermensch*. [...] We will triumph, whatever the cost'.<sup>84</sup> The problem is that Shu seeks a hierarchical posthuman future, one that by its nature makes the *Übermensch* a god not just of itself, but of others too.

In *Nexus*, mind-altering drugs are steeped in a horrific past of tyranny and murder. Two main catastrophes dominate biotechnological cultural history in the

---

<sup>82</sup> Naam, p.224.

<sup>83</sup> Ibid. p.306.

<sup>84</sup> Ibid. p.198.

novel, Yucca Grove in 2028, and the Aryan Uprising in 2030. Yucca Grove was a white-collar commune of lawyers, designers, technologists and so on. It was blissful until the Communion virus designed to enhance empathy and ‘put people closer to God’, turned people into slavish acolytes.<sup>85</sup> Some people were immune, and one man became prophet and seized control through fear and violence. Sam was an immune twelve year old at Yucca Grove but her family were infected. Sam was repeatedly raped, until one day she slipped out of a leader’s bed and called the police. An FBI siege lasted for three days, Sam survived but her family, and many others, were killed. Whilst perhaps utterly alien to contemporary reality, technologies and knowledge that bear similar implications have long been of interest to the USA. One need only think of the history of the 1960s MKULTRA, which is usually considered a military experiment into mind-control and brainwashing, was in fact, as Naomi Klein more correctly describes, ‘a scientifically based system for extracting information from “resistant sources”’.<sup>86</sup>

More recently, Malcolm Dando notes how DARPA has researched the properties of the hormones oxytocin, which plays large roles in sociality and bonding. Dando cites a 2013 DARPA solicitation that explains, ‘*oxytocin also affects behaviours relevant to national security*. Oxytocin can impact behaviours ranging from whether two individuals trust each other [or] how someone reacts to stress’.<sup>87</sup> Notable for this thesis is Dando’s identification of DARPA’s interest in narrative. He cites DARPA’s acknowledgment that understanding ‘how stories inform neurobiological processes

---

<sup>85</sup> Ibid. p.350.

<sup>86</sup> Naomi Klein, *The Shock Doctrine* (London: Penguin, 2008), p.39.

<sup>87</sup> DARPA Solicitation: SB132-001: Oxytocin: Improving measurement sensitivity and specificity’, quoted in Malcolm Dando, *The Future of Chemical-Biological Weapons* (Basingstoke: Palgrave Macmillan, 2015), p.132 [emphasis in the original].

is critical if we are to ascertain what effects stories have on the psychology and neurobiology of human choices and human behaviours'.<sup>88</sup> Indeed, a central thread running through this thesis's articulation of the neural implantation is how cultural stories, discourse, and narratives are epistemologically potent both in producing/implanting ideas of cognitive difference/normalcy, and as being a resistance to it. *Nexus* is no exception, deliberately fence-sitting between stories of enhancement's potential and warnings of dangers such as its imagining of the Aryan uprising.

This was 'an ideologically driven plot to wipe out "inferior races" and replace them with ethnically pure Übermenschen'.<sup>89</sup> The neo-Nazi group murdered 90% of their town with an airborne virus, and eugenically bred clones intended for repopulation. As seen above, this is not the only reference to Nietzsche's Übermensch. In the Posthuman Manifesto, it is a call to arms: accept us or die; during the Aryan Uprising it is used in the same terms as the Nazis, as a counterpoint to the "inferior races" or Untermenschen. Here, reading Braidotti's argument in relation to *Nexus*, that true post-humanism cannot be built on the foundations (or ashes) of contemporary neoliberal biopolitics becomes little more than the utopian transhuman idealism she rallies against, and follows the same impractical rationale of Malabou's plasticity that compels us to realise and harness the potential of our brain. *Nexus* plays with contradictory stakes here; some humans welcome the potential of enhancement; some humans fear the effects to humanhood. Where Nazism stripped personhood status for some groups, posthumans such as Shu

---

<sup>88</sup> Ibid. p.134.

<sup>89</sup> Naam, p.86.



similarly hierarchize who or what can be granted posthuman status. *Nexus* shows us that rather than questions of the subjective changes brought by enhancement (which manifested in a disregard of ethics for Eddie in *Limitless*), biopolitical questions such as status, classification, protection will be immediate concerns should similar technology become realised.

The end of the novel sees the release of the Nexus 5 blueprint into the world via the internet. Despite the best efforts of global security agencies, the blueprints are uncontrollable and spread at an alarming rate. Indeed, a hacker 'Mutat0r' is an aptly named catalyst akin to the type of narrative plasticity depicted in *Limitless*. Mutat0r, 'had taken the original package and mutated it into a plethora of new variants, adding new and irrelevant files, reordering the existing files, padding out the beginning or end with texts from the Bible, the Congressional Register, random sites from the web'.<sup>90</sup> With some human help, Nexus becomes plasticity itself endlessly forming, re-forming, and mutating, and indeed, spreading monstrously, at least in the eyes of the ERD. Details of nascent usages of Nexus such as a psychiatrist increasing empathy with patients; a porn director creating realistic 'adventures'; an Islamist imagining its use in furthering jihad; a mother hoping to 'break through' to her autistic son close the narrative.<sup>91</sup>

Though Naam himself advocates for posthumanism, and the novel makes use of definitional ambivalence and objectivity, it is here, in the idealistic usage for autism that *Nexus* highlights the inherent danger of neuro-enhancement. Standing

---

<sup>90</sup> Ibid. p.497.

<sup>91</sup> Ibid. pp.499-500.

synecdochally for neuro-atypical persons, this latterly detailed potential benefit acts much like the rest of the neuro-turn. Not only is it founded on possibility, ‘was it even possible? Could it break through the walls between them?’, but it is steeped in problematic normative discourse. Coupled with the wish to ‘break through’, the mother wonders what it would ‘be like to touch his mind?’, propagating, as the next chapter considers, increasingly outdated images of autistic children as being locked in a shell, not to mention a non-informed invasion of private thought. In other words, Nexus 5 is figured as a ‘cure’ to the expressions of subjectivity that categorise cognitive difference, in an antithetical manner to the way in which this thesis argues difference should be represented in society and culture. Moreover, given that Nexus 5 and its related enhancement drugs have so easily been co-opted for hierarchical and fascist use in the novel, how could Nexus 5, despite its collective intention, be expected to benefit those historically considered other, even Untermensch.<sup>92</sup> Likewise, the possibility of it becoming a paradise for neuro-technologists able to manipulate it is as concerning as the possibility of a new neuro class-system, the enhanced and unenhanced.

Of course, *Nexus* and its enhancement technology are entirely speculative. However, the stated aim of this thesis is to explore subjectivity and personhood through representations of neural implantations of brain and cognitive difference.

---

<sup>92</sup> It is important to highlight here the historical links between Autism and Nazism. Hans Asperger, the name now famous because of Lorna Wing’s description of Asperger’s syndrome, was an Austrian physician who in 1938 classified children displaying particular psychological and behavioural symptoms as ‘autistic psychopaths’. Recent work such as Edith Sheffer’s *Asperger’s Children*, however, highlights that Asperger was directly involved in sending children with cognitive difference to the Viennese Am Spiegelgrund clinic where children were killed under the Nazi’s Aktion T4 euthanasia policy. Edith Sheffer, *Asperger’s Children: The Origins of Autism in Nazi Vienna* (New York: W. W. Norton and Company, 2018).

Enhanced subjects in this book oscillate between utopia and dystopia. Writers such as Harari and Naam suggest we are teetering on the edge of trans- and posthuman subjects – bolstered by the huge cultural and economic industry vested in marketing and commodifying posthumanism.

\*

This chapter has explored two fictional accounts of what a neural implantation of cognitive enhancement might look and feel like. *Limitless* envisions an enhanced subject whose narrative comes to align with the contemporary compact between neoliberalism and biotechnology, creating an enhanced subject who is ethically corrupt, criminally unimpeachable, and only invested in the future. *Nexus* looks at neural implantations of enhancement at a larger scale and considers posthuman possibilities. Though *Nexus 5* aims at utopia via an increased and shared understanding of empathy, the novel imagines a world which sees only further division between cognitive ability with the parameters of normalcy, whereby ideas of what constitutes a person are scaled up in the image of an idealised brain state. What both texts highlight is biotech's role in manufacturing these new ontological states and categories. However, it is crucial also to understand that these technologies are not objective but enmesh with ideological and cultural scripts surrounding them. To this extent, and like the 'pathological' case studies of difference the next chapters consider, these two texts highlight that neural implantations of enhancement and debates surround their legitimacy or actuality must be less about specific technologies and how effective these might be in achieving cognitive enhancement, and more about the power of the 'fictions' and

biopolitics underpinning their discursive claims of progress, anti-aging, or their ability to castigate difference through normative models of plasticity or idealised transhuman capability.

## Chapter Two: The Shooter and the Hacker: Autism, Courtrooms, and Justice

As a diagnostic category, autism has developed from being a label for childhood schizophrenia to its contemporary and much more generalised use in categorising of a range of cognitive and learning differences (still predominantly associated with childhood).<sup>1</sup> It has become a relatively common diagnosis and, crucially for this thesis, a widely represented and translated ‘thing’ in society and culture. Autism is a powerful explanatory and classificatory diagnostic discourse that creates ontological effects with an authority that implies certainty to that which it signifies and attaches. It creates medical identities and informs and underpins subjectivity, reflected in the growing shift towards identity-first language (autistic person) over person-first

---

<sup>1</sup> Autism originally aligned with childhood schizophrenia, later developing into a range of communication disorders, before becoming the relatively commonly diagnosed neurological/developmental condition we understand it as today (Evans). This modern meaning emerged from epidemiological studies in the latter half of the twentieth century conducted by researchers like Lorna Wing and Judith Gould. They not only found that autism is much more common than previously thought, but also began the change from sub-grouping types of autism, such as the disappearance of Leo Kanner’s influential description of ‘infantile autism’ or their resurrection of Hans Asperger’s forgotten work on the subject, stressing instead the spectrum model. Wing’s move was to widen the parameters of autistic diagnosis by focussing on three key elements, the ‘triad of impairments in social interaction, communication, imagination, and behaviour’ (Wing). In so doing, the scope of autism significantly expanded, ranging from ‘general learning disability to average or even superior cognitive skill in areas not directly affected by the basic impairments’ (Wing). Indeed, the latest model of the DSM removed Asperger’s as a distinct type of autism, preferring the generalised diagnosis Autism Spectrum Disorder (APA). Though the meaning of ‘autism’ as a diagnostic category has changed throughout the twentieth century, what this example illustrates is the decreasing specificity and increasing generality of the diagnosis. The narrative here is of specific and often disparate symptoms grouped together into a diagnosis, the parameters of which are themselves subsequently widened out. Bonnie Evans, ‘How autism became autism: The radical transformation of a central concept of child development in Britain’, *History of the Human Sciences*, 26.3 (2013), 3-31; Lorna Wing, ‘The Autistic Spectrum’, *The Lancet*, 350, 13 December 1997, 1761-1766 (p.1); American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders Fifth Edition* (Washington DC: American Psychiatric Association, 2013), p.xlii.

language (person with autism), indicative of neural implantations, where, as the National Autistic Society notes: 'autism is seen as integral to the person'.<sup>2</sup>

Stuart Murray makes this cultural resonance clear in his book *Representing Autism: Culture, Narrative, Fascination*, in which he theorises 'autism events', meaning 'fictions that almost achieved the status of sociological documents in the ways in which their presentation of the condition was received'.<sup>3</sup> He refers specifically to *Rain Man* (Levinson, 1988) and Haddon's *The Curious Incident of the Dog in the Night-Time* (2003). Indeed, Murray's own work has become, if not a cultural 'autism event', then certainly an academic one through its exploration of autism narratives, something this chapter continues to explore. Murray explains the narratives he chose were the most 'revealing and pertinent' of the time (2008).<sup>4</sup> The book unpicks the long-standing idiot/savant paradigm and considers the narrative of 'witnessing' which Murray coins to explain how autism interacts with general culture, ultimately arguing we are all 'witnesses' to autism, from experts to lay persons.<sup>5</sup> This agrees with the idea running throughout this thesis that the neuro-turn is so enmeshed with how we construct and understand the self to the extent that 'we are all scientists now' given the proliferation of neuro discourse in society and culture. Murray considers gender and autism and how autism has come to be associated with traditionally masculine traits, before finally looking at autism and the family. In this final chapter, Murray begins with the murder of autistic persons by parents or carers. This task is continued and furthered by Anne McGuire in her 2016 book *War on*

---

<sup>2</sup> 'The language we use to describe autism', *National Autistic Society*, <<https://www.autism.org.uk/about/what-is/describing.aspx>> [accessed 4 December 2019].

<sup>3</sup> Stuart Murray, *Representing Autism: Culture, Narrative, Fascination*, pp. 12-13.

<sup>4</sup> *Ibid.* p.23.

<sup>5</sup> *Ibid.* p.114.

*Autism*. She begins her book with news reports relating to the murder of autistic persons, primarily in Canada. The ripples of Murray's book can be clearly seen in McGuire's own interest in narrative. She writes 'what autism is and can be today has everything to do with the ways in which stories appear against a cultural backdrop that privileges the telling of some stories over and against others'.<sup>6</sup> Like this thesis, McGuire is keen to highlight the specific contemporary biopolitics underpinning what she deems the 'cultural logic of normative violence', which is the notion that autism is framed as a pathological issue to be contained, cured, or corrected most worryingly by certain autism advocacy groups. I subscribe to this argument, and her focus on the privileging of certain narratives and stories as underscoring this normative violence is crucial for my understanding of the neural implantation of autism. As I will maintain, in being implanted into the soul, body, and subjectivity of a person, autism creates significant biopolitical constraints *as well as* particular narrative modes of resistance and reclamation against these. Indeed, like Yuval Noah Harari's expectation that the future will see 'fiction' be the most effective discourse in shaping our perceptions of truth, challenging this normative violence and getting alternative models of autism into cultural consciousness is critical.<sup>7</sup>

Narratives of autism are constantly evolving. Murray argues that the autistic savant 'has the same absence of coherence that marked 'the idiot' figure of an earlier era', and that in a time of 'rationality and scientific knowledge' autism still allows

---

<sup>6</sup> Anne McGuire, *War on Autism: On the Cultural Logic of Normative Violence*, (Ann Arbor: University of Michigan Press, 2016), p.13.

<sup>7</sup> Ian Hacking similarly discusses the importance of fictionally storytelling in relation to what and how both autistic and non-autistic persons think about autism. Ian Hacking, 'How we have been learning to talk about autism: a role for stories', *Metaphilosophy*, 40 (2009), 499-516 <<https://doi.org/10.1111/j.1467-9973.2009.01607.x>> [accessed 17 May 2018].

space for 'wonder and awe' through the remarkable talents of savants.<sup>8</sup> However, Murray is quick to highlight a problem; in maintaining a magician-like air, savant narratives make it easier to disavow the social realities of autistic adults.<sup>9</sup> Taking both media and fictional narrative into consideration, this chapter extends and augments Murray's work and argues the contemporary 'autistic savant' as considered by Murray is today most fully represented in the figure of the autistic hacker, who is able to achieve justice and effect structural change through atypical abilities. To an extent, the autistic hacker comes, as discussed below, to share properties with the enhanced brain. Fictional representations of savant-like ability feed into cognitive enhancement's cultural purchase, especially regarding ideas of plastic potential.

Building on Murray and McGuire, this chapter intervenes in critical autism scholarship to argue that the figure of the autistic person today falls between two problematic and prejudicial representations of the 'violent shooter' and the 'savvy hacker'. It tracks these figures in contemporary media culture, before exploring these two figures in contemporary crime narratives. Jodi Picoult's *House Rules* (2010) unfolds as a US courtroom drama deliberating on Jacob Hunt, an autistic eighteen year-old who is accused of killing his mentor Jess. Though not a 'shooter', Jacob's lack of agency in the fictional trial offers a useful exploration of how biopolitical and legal imperatives come to bear on cognitive difference. The remainder of the chapter looks at fictional figurations of the hacker, through Steig Larsson's character Lisbeth Salander in his *Millennium* trilogy (2007-9 in English translation) and Jesse Banks in the Australian television series *The Code* (2014-16). Though representing different

---

<sup>8</sup> Murray, pp. 98-9.

<sup>9</sup>Ibid.



narrative forms and geographic locations, the characters encapsulate both the widespread prejudice an implantation of cognitive difference brings, but also the inherent space for subjective resistance from within the implantation itself. Through hacking, they find imaginative ways not only to bring self-justice, but justice for those whose lives are similarly underpinned by biopolitical imperatives and technology.

### The Autistic Hacker

In 2002 Briton Gary McKinnon was accused of ‘the biggest military hack of all time’, having hacked into US Defence in the hope of finding the truth about UFOs.<sup>10</sup> Depressed and taking Prozac, McKinnon found himself in limbo waiting for, and fighting against, extradition to the US.<sup>11</sup> In his words: ‘things started to change’ when, during a 2008 television interview, ‘a woman who had Asperger’s syndrome [...] thought that I was displaying classic signs of the condition’.<sup>12</sup> McKinnon was formally diagnosed by psychologist and autism researcher Simon Baron-Cohen, which coupled with his depression and suicide risk, persuaded the then Home Secretary Theresa May to block his extradition in 2012 under the Human Rights Act. Since then, McKinnon’s diagnosis has played a central role in public discussion and has featured in a string of subsequent news stories.<sup>13</sup> The autistic hacker has become a

---

<sup>10</sup> Will Dunn, ‘Autistic hackers: the teenagers who “get carried away”’, *New Statesman*, 20 October 2017, Cyber section <<https://www.newstatesman.com/microsites/cyber/2017/10/will-prison-deter-autistic-teenager-hacking>> [accessed 15 May 2018].

<sup>11</sup> Gary McKinnon, ‘Theresa May saved my life – now she’s the only hope for the Human Rights Act’, *Guardian*, 15 November 2016, Opinion section <<https://www.theguardian.com/commentisfree/2016/nov/15/theresa-may-saved-my-life-human-rights-act>> [accessed 21 May 2018].

<sup>12</sup> Ibid.

<sup>13</sup> See for example, ‘Gary McKinnon profile: Autistic ‘hacker’ who started writing computer programs at 14’, *Telegraph*, 23 January 2009. USA section <<https://www.telegraph.co.uk/news/worldnews/northamerica/usa/4320901/Gary-McKinnon-profile-Autistic-hacker-who-started-writing-computer-programs-at-14.html>> [accessed 18 May 2018].

recognisable figure of the contemporary moment, appearing frequently in recent news media. Such is the case with teenager Kane Gamble who appeared in the *Independent* in this headline: ‘teenager with autism on Leicestershire housing estate took classified information by fooling people into thinking he was FBI boss’.<sup>14</sup> These international, political, and legal incidents and actions often go to the heart of national security, and as I will show throughout this chapter, share thematic characteristics with the thriller genre. Perhaps most notable among such hackers is Lauri Love. In 2013 US authorities attempted to extradite Love for a 2012-13 ‘hacking spree’ in which he was accused of stealing classified data.<sup>15</sup> He was said to have hacked the US Federal Reserve, the Department of Defence, NASA, and the FBI.<sup>16</sup> The similarities to the McKinnon case are striking; Love was fighting extradition on the grounds of mental health and suicide-risk and was also subsequently diagnosed with Asperger’s by Baron-Cohen in 2015.<sup>17</sup> During the 2016 hearing, Baron-Cohen testified that Love should not be extradited due to his mental health, severe eczema, and autism, but the prosecution challenged the validity of his diagnoses and the extradition was granted.<sup>18</sup> He appealed, and on the 5<sup>th</sup> February 2018 the Court of Appeal blocked his extradition. Headlines ran thus: “Hacker’ says victory against US

---

<sup>14</sup> Nina Massey, ‘Kane Gamble: Teenager with autism on Leicestershire housing estate took classified information by fooling people into thinking he was FBI boss’, *Independent*, 21 January 2018, Crime section <<https://www.independent.co.uk/news/uk/crime/us-intelligence-cia-fbi-american-government-john-brennan-mark-giuliano-crackas-with-attitude-latest-a8170561.html>> [accessed 21 May 2018].

<sup>15</sup> David Gilbert, ‘Autistic U.K. hacker who stole U.S. secrets won’t face trial in U.S.’, *Vice*, 5 February 2018, News section <[https://news.vice.com/en\\_ca/article/pamy9b/autistic-uk-hacker-who-stole-us-secrets-wont-face-trial-in-us](https://news.vice.com/en_ca/article/pamy9b/autistic-uk-hacker-who-stole-us-secrets-wont-face-trial-in-us)> [accessed 15 May 2018].

<sup>16</sup> Martin Evans, ‘Autistic man accused of computer hacking could kill himself if extradited, court is warned’, *Telegraph*, 28 June 2016, News section <<https://www.telegraph.co.uk/news/2016/06/28/lauri-love/>> [accessed 15 May 2018].

<sup>17</sup> Simon Parkin, ‘Keyboard warrior: the British hacker fighting for his life’, *Guardian*, 8 September 2017 <<https://www.theguardian.com/news/2017/sep/08/lauri-love-british-hacker-anonymous-extradition-us>> [accessed 15 May 2018].

<sup>18</sup> *Ibid.*

extradition is a big win for people with autism’; ‘Lauri Love: Autistic hacking suspect wins US extradition appeal’; ‘Autistic U.K. hacker who stole U.S. secrets won’t face trial in the U.S.’.<sup>19</sup>

After winning his appeal, Love said ‘I’m hoping that this outcome can contribute to the discussion we are having as a society about how to accommodate people that have neurodiversity, whose brains are made up in a slightly different way’.<sup>20</sup> This idea of different accommodations for different brains has garnered debate. That Love and McKinnon were deemed at risk of suicide was a result of a mix of health problems, particularly depression; however, it is equally clear that their autistic behaviours and expressions were liable to cause intense distress if the extradition went forward. If these immediate life-threatening concerns blocked their extraditions – and, as McKinnon explains, saved their lives – subsequent questions have arisen regarding the relative culpability of autistic persons who hack. Gary McKinnon’s defence barrister Ben Cooper frames the debate succinctly: ‘generally [autistic hackers] are not really thinking consequentially. They get carried away, in the middle of the night, on their computers. Most of them are extremely lonely guys [...] and so this is their one opportunity to have a community’.<sup>21</sup> This is echoed by Ami Klin, director of the Marcus Autism Center: ‘there are individuals with Asperger’s syndrome whose only window into the social world is their computer screens, and

---

<sup>19</sup> Tom Herbert, ‘Hacker’ says victory against US extradition is a big win for people with autism’, *Metro*, 5 February 2018 < <https://metro.co.uk/2018/02/05/computer-hacker-wins-hearing-extradition-us-7287823/> > [accessed 15 May 2018]; Alexandra J Martin, ‘Lauri Love: Autistic hacking suspect wins US extradition appeal’, *Sky*, 5 February 2018 < <https://news.sky.com/story/lauri-love-autistic-hacking-suspect-wins-us-extradition-appeal-11237738> > [accessed 5 May 2018]; David Gilbert, ‘Autistic U.K. hacker who stole U.S. secrets won’t face trial in the U.S.’.

<sup>20</sup> Laurie Love quoted in Herbert, ‘Hacker’ says victory against US extradition is a big win for people with autism’.

<sup>21</sup> Ben Cooper quoted in Dunn, ‘Autistic hackers: the teenagers who “get carried away”’.

they bring their naivety and gullibility to that medium'.<sup>22</sup> This notion that autistic people are generally isolated and find a community online is one facet of the rise of the 'autistic hacker'. They, so the argument goes, 'get carried away', having found a skill and community in which to flourish.

Despite its illegality, such unique skills have unsurprisingly emerged into a form of work/productivity. In 2017, *The Times* ran: 'Autistic hacker Jack Chappell 'had been exploited'', referring to the fact that he was paid only £1500 by the underground company he worked for despite amassing £600,000 from the hacks.<sup>23</sup> Moreover, such narratives that turn deviant-hacker into productive-helper are not rare. Will Dunn reports that Adam Mudd, an autistic hacker jailed for two years whose malware amassed over £386,000, was offered a job at a security firm in Newcastle before he was sentenced, with McKinnon's lawyer Cooper noting that such opportunities would offer the best kind of rehabilitation.<sup>24</sup> Similarly, Jake Davis, the person behind the 2011 *Daily Mail* headline: 'Autistic Shetland teen held over global internet hacking spree 'masterminded from his bedroom'supported Love, explaining during the extradition process that 'the word that keeps coming to mind throughout this whole ordeal is 'waste'. It's such a waste of time, money and effort to attempt to extradite him, and an even bigger waste of talent'.<sup>25</sup> Such sentiment is

---

<sup>22</sup> Ami Klin quoted in Gerry Smith, 'Is Having Autism a Defense for Hacking?', *Huffington Post*, 23 September 2011, Technology section <[https://www.huffingtonpost.co.uk/2011/09/22/hacking-autism\\_n\\_976392.html](https://www.huffingtonpost.co.uk/2011/09/22/hacking-autism_n_976392.html)> [accessed 15 May 2018]. For more on autistic persons and online sociality see Victoria Henderson, and others, 'Hacking the master code: cyborg stories and the boundaries of autism', *Social & Cultural Geography*, 15.5 (2014), 504-524 <<https://doi.org/10.1080/14649365.2014.898781>> [accessed 25 May 2018].

<sup>23</sup> Gabriella Swerling, 'Autistic hacker Jack Chappell 'had been exploited'', *The Times*, 19 December 2017 <<https://www.thetimes.co.uk/article/autistic-hacker-jack-chappell-had-been-exploited-kx8vwh829>> [accessed 20 May 2018].

<sup>24</sup> Dunn, 'Autistic hacker: the teenagers who "get carried away"'.

<sup>25</sup> Chris Greenwood, 'Autistic Shetland teen held over global internet hacking spree 'masterminded from his bedroom'', *Daily Mail*, 31 July 2011 <<https://www.dailymail.co.uk/news/article->

also present in public reactions to online articles relating to the autistic hacker; opinion seems to cluster into two groups, either reinforcing the illegality or celebrating the talent. For instance, in reference to a *Daily Mail* article on Kane Gamble, 'Anonymous' wrote 'clever boy, give him a job'; 'mill1989' wrote, 'Hire him!'; and 'stc6' wrote 'A talented kid! We should put him to good use but keep him on a tight leash!'.<sup>26</sup>

Clearly, this form of 'deviant' hacking has a productive worth at both institutional and cultural levels.<sup>27</sup> This seems particularly pertinent today given the increased threat hacking poses, bolstered recently through accusations of Russian interference in the 2016 US presidential election and concerns over the 2020 election, as well as the technological reality of modern war.<sup>28</sup> Simon Perkins notes in the *Guardian*, 'hacking, once viewed as a kind of prank carried out by wayward geeks, is now seen as a crucial weapon by foreign governments and organised crime'.<sup>29</sup> In other words: a sense that we had better have them working for the geopolitical 'us'. Indeed, as the *Telegraph* article 'I spy with my little eye...someone on the spectrum' reports, 'espionage is a haven for people with dyslexia, dyspraxia and Asperger's'

---

[2020942/Autistic-Shetland-teen-held-global-internet-hacking-spree-masterminded-bedroom.html](https://www.dailymail.co.uk/news/article-5290787/Boy-15-posed-head-CIA-secret-files.html)> [accessed 21 May 2018]; Jake Davis quoted in Parkin, 'Keyboard Warrior: the British hacker fighting for his life'.

<sup>26</sup> Commenters in Fionn Hargreaves, 'British schoolboy, 15, posed as a CIA director to access secret military reports and taunted FBI agents with chilling threats', *Daily Mail*, 19 January 2018 <<https://www.dailymail.co.uk/news/article-5290787/Boy-15-posed-head-CIA-secret-files.html>> [accessed 21 May 2018].

<sup>27</sup> For more on the usefulness of this 'deviant' hacker, see Paul A. Taylor, 'Hackers: Cyberpunks or microserfs', *Information, Communication & Society*, 1.4 (1998), 401-419.

<sup>28</sup> Ken Dilanian, 'U.S. election czar says attempts to hack the 2020 election will be more sophisticated', *NBC*, 14 January 2020 <<https://www.nbcnews.com/politics/national-security/u-s-election-czar-says-attempts-hack-2020-election-will-n1115346>> [accessed 8 March 2020].

<sup>29</sup> Parkin, 'Keyboard warrior: the British hacker fighting for his life'.

with 100 of GCHQ's 5000 employees categorised as neurodiverse.<sup>30</sup> Note the very diagnoses and categorisations typical of neural implantations here are viewed as necessary, even coveted. Moreover, Julian Assange, perhaps the most (in)famous hacker-turned-leaker writes: 'I am – all hackers are, and I would argue all men are – a little bit autistic'.<sup>31</sup> This notion that 'all men are a little autistic' is an increasingly old-fashioned phantom of the brain; however, Assange's claim that all hackers are autistic is typical of the strong association between hacking and autism and reflective of the modern vision of certain types and expressions of autism as being productive and cutting-edge. Indeed, if employees at GCHQ work to ensure the smooth running of governmentality, Assange represents the other side of the coin, the view that autistic hackers given their talents are uniquely, or so it is framed, able to reveal secrets and hold power to account. Commenting in the *Leicester Mercury*, Kane Gamble's regional paper, 'LeicsMerc' writes: 'the lad has a talent! He might uncover all the governments lies!'<sup>32</sup> However, as 'stc6's comment above shows, fascination and talent do not make for an agential subject, but, as this chapter argues, often someone to use and surveil – to be put to work on a 'tight leash'. The legal status of these cases is not the focus of this chapter, rather my concern is to examine the ways in which such high-profile cases work to establish the figure of the 'autistic hacker'. I argue that such cases highlight how autism is 'handled' in court and more generally

---

<sup>30</sup> Peter Stanford, 'I spy with my little eye...someone on the spectrum', *Telegraph*, 23 September 2014 <<https://www.telegraph.co.uk/education/educationnews/11113540/i-spy-with-my-little-eye...-someone-on-the-spectrum.html>> [accessed 21 May 2018].

<sup>31</sup> Julian Assange quoted in Smith, 'Is Having Autism a Defense For Hacking?', Smith notes that he is quoting from Assange's autobiography published without consent.

<sup>32</sup> Commenter on Suzy Gibson, Hacker Kane Gamble was just 15 when he targeted CIA, FBI and advisor to Obama', *Leicester Mercury*, 6 October 2017 <<https://www.leicestermercury.co.uk/news/leicester-news/hacker-just-15-targeted-cia-588770>> [accessed 15 May 2018].

how autism, hacking, and contemporary biopolitical imperatives coalesce in society and culture.

### The Autistic Shooter

If, despite its illegality, the hacker represents a relatively positive/productive form of action, a parallel figure is emerging in the form of the autistic shooter whose roots can be traced to phantoms of the brain that attach cognitive difference to violence.<sup>33</sup>

On the 16<sup>th</sup> April 2007, Cho Seung-Hui shot and killed thirty-two people and wounded sixteen others at Virginia Polytechnic Institute and State University (Virginia Tech), the deadliest campus shooting in US history. Cho's mental health was debated in the media and just one day after the shooting *ABC News* ran this headline: 'Cho Likely

---

<sup>33</sup> This aspect of the neural implantation mirrors Foucault's description of the perverse implantation which describes the effects of 'implanting' irregular sexuality, mental illness, and criminality. Phantoms of this historic association between mental illness/cognitive difference and criminality remain today. These phantoms are the product of both prejudicial cultural representation and disciplinary techniques such as the sometimes indefinite detention of autistic persons. As a cultural example, some reviews of the filmic adaptation of *We Need to Talk About Kevin* (Ramsay, 2011) construct Kevin to be an autistic shooter. For instance, Marlow Stern interviewed 'renowned child and adolescent psychiatrist Alan Ravitz' to ask whether 'inherently evil kids exist'. Ravitz suggests, 'Maybe [Kevin] has Asperger's or something on the autism spectrum because he has very superficial relationships, but there was a passion to the kid in his vindictiveness. Autistic kids are just disconnected'. Marlow Stern, 'We Need to Talk About Kevin': Do Inherently Evil Kids Exist?', *Daily Beast*, 10 December 2011 [updated 13 July 2017] < <https://www.thedailybeast.com/we-need-to-talk-about-kevin-do-inherently-evil-kids-exist?ref=scroll> > [accessed 5 December 2019]. In a similar review of the film Mary Corliss writes, '[Kevin] may fit some definition of autism or Asperger's, in that he cannot access an ethical sense that would force shame upon him. But the simpler explanation is that he's evil'. Mary Corliss, 'We Need to Talk About Kevin: The Face of Pure Evil', *Time*, 16 May 2011 < <http://entertainment.time.com/2011/05/16/we-need-to-talk-about-kevin-the-face-of-pure-evil/> > [accessed 5 December 2019]. Similarly, replies to the question 'Did Kevin respect his Mum after all?' (Claire, 7 May 2012) on the novel's Goodreads webpage contains arguments for and against an autistic reading of Kevin. 'Linda' writes, 'I'm [...] convinced that Kevin was on the Autism spectrum' suggesting that he 'could easily meet enough criteria on DSM-IV or V' (8 November 2012). 'Davida' agrees, 'From very early on I was convinced Kevin was on the Autism spectrum' (10 November 2012). In difference to 'Linda' and 'Davida', 'Shay' writes: 'Kevin was nowhere NEAR the autism spectrum' (23 February 2014). 'Tracy' agrees with 'Shay' that Kevin is not autistic, but 'felt from the moment Celia [Kevin's sister] was born that she was on the spectrum' (2 June 2014). < <https://www.goodreads.com/topic/show/887622-did-kevin-respect-his-mum-after-all> > [accessed 5 December 2019].

Schizophrenic, Evidence Suggests'.<sup>34</sup> Two days later Dave Cullen captured what became a zeal for folk diagnosis:

television analysts have Cho deconstructed already: He's a madman, he's a psychopath, a schizophrenic, a psychotic—or maybe just an angry depressive. Experts have rendered definitive diagnoses on every network—and they are wildly contradictory. *The Today show* alone has made a grand tour through the diagnostic manual. Thursday morning Matt Lauer proclaimed Cho 'clearly a psychotic individual.' Lauer described psychosis as an evolution from his previous diagnosis of depression. 'We should make the differentiation there,' Dr. Lauer advised.<sup>35</sup>

Here the discursive power of diagnosis to explain and flatten-out contingent circumstances without real knowledge of personal history is evident. Indeed, the next day *FOX* reported: 'Relative Says Virginia Tech Shooter Was Autistic', with Cho's great aunt telling the reporter 'when they went to the United States, they told [his parents] it was autism'.<sup>36</sup> Formal diagnosis of his autism remains debated, uncertain, and reliant on descriptions from his overseas family; yet despite this, the *Telegraph* described Cho through the headline 'Cold-hearted loner diagnosed as autistic'.<sup>37</sup> Moreover, Michael H. Stone, a psychiatrist who specialises in evil, writes that although 'autistic persons are rarely violent' in exceptional cases their inability 'to sense what others feel' or form friendships can lead to extreme violence, which 'was certainly the case with the mass murderer on the Virginia Tech campus in 2007'.<sup>38</sup>

---

<sup>34</sup> Michael Welner, 'Cho Likely Schizophrenic, Evidence Suggests', *abcnews*, 17 April 2007 <<https://abcnews.go.com/Health/VATech/cho-schizophrenic-evidence-suggests/story?id=3050483>> [accessed 22 May 2018].

<sup>35</sup> Dave Cullen, 'Psychopath? Depressive? Schizophrenic?', *Slate*, 20 April 2007, Technology section <<https://slate.com/technology/2007/04/was-cho-a-psychopath-a-depressive-or-a-psychotic.html>> [accessed 20 May 2018].

<sup>36</sup> 'Relative Says Virginia Tech Shooter Was Autistic', *Fox News*, 20 April 2007 <<https://www.foxnews.com/story/relative-says-virginia-tech-shooter-was-autistic>> [accessed 9 May 2018].

<sup>37</sup> Richard Spencer, 'Cold-hearted loner diagnosed as autistic', *Telegraph*, 21 April 2007 <<https://www.telegraph.co.uk/news/worldnews/1549284/Cold-hearted-loner-diagnosed-as-autistic.html>> [accessed 9 May 2018].

<sup>38</sup> Michael H. Stone, *The Anatomy of Evil* (New York: Prometheus Books, 2009), p.299.



Autism provides Stone with a framework through which to ‘envision’ likely biological pathways leading to this contemporary evil, such as a ‘genetic impairment of empathy’ caused by ‘insufficient orbitofrontal inhibition’.<sup>39</sup> In other words, the possibility of autism is enough to flatten out the particularities of Cho’s history: violence becomes framed as a pathological deficit.

In 2012, the Sandy Hook shooting saw Adam Lanza kill twenty-seven people at a local elementary school, as well as his mother. Where Cho’s link to autism was largely speculative, Lanza’s was formally diagnosed before the shooting at age thirteen.<sup>40</sup> Echoing Cho’s case, CNN’s *Piers Morgan Tonight* booked psychologist Xavier Amador who reinforced this discursive link between autism and violence, stating: ‘something’s missing in the brain, the capacity for empathy, for social connection’.<sup>41</sup> Elsewhere, *Fox News* and the *New York Times* came under scrutiny for over-representing such a link.<sup>42</sup> More recently, news emerged that ‘FBI files reveal mass killer Adam Lanza had paedophilic interest in children’.<sup>43</sup> The same article reported that Lanza’s mother refused treatments for his anxiety and other mental health conditions, but did note that reports concluded his autism did not contribute

---

<sup>39</sup> Ibid. p.300.

<sup>40</sup> Alice Park, ‘Don’t blame Adam Lanza’s violence on Asperger’s’, *Time*, 11 March 2011 <<https://time.com/19957/adam-lanzas-violence-wasnt-typical-of-aspergers/>> [accessed 22 May 2018].

<sup>41</sup> Xavier Amador cited in in Simon J. Bronner, ‘The Shooter Has Asperger’s: Autism, Belief, and ‘Wild Child’ Narratives’, *Children’s Folklore Review*, 36 (2014), 35-54 (p.42).

<sup>42</sup> Tommy Christopher, ‘Fox News And The New York Times Abet Media Effort To Falsely Link Autism With CT Shooting’, *Mediaite*, 16 December 2012 <<https://www.mediaite.com/print/fox-news-and-the-new-york-times-abet-media-effort-to-falsely-link-autism-with-ct-shooting/>> [accessed 22 May 2018].

<sup>43</sup> Dave Collins, ‘Sandy Hook shooting: FBI files reveal mass killer Adam Lanza had paedophilic interest in children’, *Independent*, 25 October 2017 <<https://www.independent.co.uk/news/world/americas/sandy-hook-massacre-adam-lanza-paedophilia-fbi-files-mass-shooting-newtown-elementary-school-a8018566.html>> [accessed 22 May 2018].

to the shootings. In 2014, news broke of research undertaken at the University of Glasgow looking into neurodevelopmental and psychosocial risk factors that may contribute to serial killing and mass murders.<sup>44</sup> The *Daily Mail* reported the research as: 'Recipe for a serial killer? Childhood abuse, autism and head injuries are more common in murderers, study claims', while the *Washington Post* published the same news in relation to Lanza, further entrenching the link between autism, violence, and shootings.<sup>45</sup>

In 2015 Malcolm Gladwell analysed school shootings in *The New Yorker* through the case of John LaDue. LaDue was apprehended prior to his planned shooting taking place as his suspicious activity led to the police being called.<sup>46</sup> He was making Molotov cocktails, pressure bombs, and had an SKS assault rifle in his bedroom. Like many school shooters before him he was fascinated by his predecessors, buying a black duster jacket to emulate Columbine murderer Eric Harris, and deriding Lanza for his cowardice in attacking an elementary school. Gladwell notes that beyond the fact that most school shootings are carried out by young white men 'the great puzzle is how little school shooters fit any kind of pattern'.<sup>47</sup> His argument is compelling, detailing the differences in backgrounds,

---

<sup>44</sup> Clare S. Allely and others, 'Neurodevelopmental and psychosocial risk factors in serial killers and mass murderers' in *Aggression and Violent Behaviour* 19.3 (2014), 288-301.

<sup>45</sup> Victoria Woollaston, 'Recipe for a serial killer? Childhood abuse, autism and head injuries are more common in murderers, study claims', *Daily Mail*, 21 May 2014, Science section

<<https://www.dailymail.co.uk/sciencetech/article-2634865/Recipe-serial-killer-revealed-Childhood-abuse-autism-head-injuries-common-murderers-study-claims.html>> [accessed 1 January 2017];

Terrence McCoy, 'Significant' statistical link between mass murder and autism, brain injury', *Washington Post*, 21 May 2014 <[https://www.washingtonpost.com/news/morning-mix/wp/2014/05/21/study-finds-significant-portion-of-mass-murderers-and-serial-killers-had-neurological-disorders-including-autism/?utm\\_term=.da280d2b7472](https://www.washingtonpost.com/news/morning-mix/wp/2014/05/21/study-finds-significant-portion-of-mass-murderers-and-serial-killers-had-neurological-disorders-including-autism/?utm_term=.da280d2b7472)> [accessed 20 May 2018].

<sup>46</sup> Malcolm Gladwell, 'Thresholds of Violence: How School Shootings Catch On', *New Yorker*, 12 October 2015 <<https://www.newyorker.com/magazine/2015/10/19/thresholds-of-violence>> [accessed 8 May 2018].

<sup>47</sup> Gladwell, 'Thresholds of Violence'.

abuse, affluence, and, mental illnesses. In the LaDue case for instance, a forensic psychologist found that LaDue ‘wasn’t violent or mentally ill [...] He was simply a little off [...] The conclusion of all three of the psychologists who spoke at the hearing was the LaDue had a mild-to-moderate case of autism’.<sup>48</sup> However, Gladwell’s argument loses credence when he ultimately leaves the link between autism and violence/shooting undisturbed and tacitly associative. The suggestion is that LaDue’s autism created obsessive and looping thoughts in an otherwise non-violent person. Gladwell’s final sentence, that the problem is not a generation of young violent men but rather that ‘young men no longer need to be deeply disturbed to contemplate horrific acts’ leaves a reading that being ‘a little off’ – synonymous here with degrees of cognitive difference – is enough to cause a propensity for mass violence.<sup>49</sup>

Regarding 2018’s Long Branch New Jersey shooting of the Kologji family the *Daily Mail* ran: ‘Autistic Boy, 16, is arrested after ‘shooting dead his mom, dad, sister and family friend with a semi-automatic rifle’ just minutes before midnight in New Year’s Eve massacre’.<sup>50</sup> Here ‘autistic’ is the defining feature of this person and comes to act as an implicit explanation for the proceeding violence in the remainder of the headline. Elsewhere, in February 2018, Nikolas Cruz was arrested for shooting dead seventeen people and injuring seventeen others at Stoneman Douglas High School in Parkland, Florida. Reports quickly emerged that Cruz has a myriad of mental health problems, with CBS News noting that he ‘avoided eye contact during [the] hearing’

---

<sup>48</sup> Ibid.

<sup>49</sup> Ibid.

<sup>50</sup> Emily Crane, ‘Autistic boy, 16, is arrested after ‘shooting dead his mom, dad, sister and family friend with a semi-automatic rifle’ just minutes before midnight in New Year’s Eve massacre’, *Daily Mail*, 1 January 2018 <<https://www.dailymail.co.uk/news/article-5226757/New-Jersey-teen-arrested-shooting-dead-family.html>> [accessed 12 May 2018].

that he ‘had depression, ADHD and autism’ and that he ‘cut his arms in a Snapchat post’.<sup>51</sup> Likewise, the *Chicago Tribune* explained that ‘Cruz had been diagnosed with autism, a neurological disorder that often leads to social awkwardness and isolation, and attention deficit-hyperactivity disorder, or ADHD’.<sup>52</sup>

As discussed in the introduction, in much the same way as Jonathan Metzl challenges the profiling of schizophrenia in *The Protest Psychosis*, it is crucial to note there has been immense backlash against these casual, rather than causal, associations between autism and mass violence.<sup>53</sup> Andrew Solomon wrote an op-ed piece for the *New York Times* titled: ‘The Myth of the Autistic Shooter’, making clear that autistic people are statistically ‘far more likely to be attacked than to attack’ and that ascribing violence to autism ‘is an insidious form of profiling’ akin to presuming most Muslims are terrorists.<sup>54</sup> He echoes much critical autism scholarship writing that in cases where autism and psychopathy co-exist, it is predominantly the former that is diagnosed which has the effect of blinding or ‘distracting’ professionals and carers by means of ascribing any aberrant behaviours to being a product of autism.<sup>55</sup>

---

<sup>51</sup> Manuel Bojorquez, ‘Missed warning signs emerge in Florida school shooting’, *CBS News*, 19 February 2018 <<https://www.cbsnews.com/news/nikolas-cruz-florida-school-shooting-new-details-emerge-dcf/>> [accessed 16 May 2018].

<sup>52</sup> Jason Dearen, Allen Breed and Tamara Lush, ‘Florida school shooting suspect was investigated by state after self-harming’, *Chicago Tribune*, 28 February 2018 <<http://www.chicagotribune.com/news/nationworld/ct-florida-school-shooter-nikolas-cruz-20180217-story.html>> [accessed 16 May 2018].

<sup>53</sup> See introduction, footnote 163. See also Metzl and Kenneth T. MacLeish’s work on the discursive effects of medical narratives and prejudices in the aftermath of mass shootings. Metzl and MacLeish, ‘Mental Illness, Mass Shootings, and the Politics of American Firearms’, *Journal of Public Health*, 105.2 (2015), 240-249.

<sup>54</sup> Andrew Solomon, ‘The Myth of the ‘Autistic Shooter’, *New York Times*, 12 October 2015, Opinion section, <<https://www.nytimes.com/2015/10/12/opinion/the-myth-of-the-autistic-shooter.html>> [accessed 1 December 2017].

<sup>55</sup> Ibid. Sami Timimi and Brian McCabe note how problematic diagnoses of autism can be because of its extensive symptomology. They rightly ask how an autistic lack of empathy can be ‘differentiated from the lack of empathy found in conduct disorder or, indeed, the ‘personality disordered criminal’. Sami Timimi and Brian McCabe ‘What Have We Learned From The Science of Autism?’ in *Re-thinking*

Lanza's father, Peter, has similarly been vocal in expressing he does not believe Asperger's was the cause of his son's actions.<sup>56</sup> Yet, such associations have become so typical that the Autism Society of America published a statement on their website asking reporters not to 'suggest or imply any linkage of autism and violence' shortly after the Parkland shooting.<sup>57</sup> What is clear is that highlighting autism in such cases adds very little in terms of tangible explanation. For instance, the *Daily Mail* article about the Long Branch shooting sees 'autistic boy' and 'he did not attend regular public school' tacitly filling the explanatory void despite its admission that 'a motive for the shooting is not yet known'.<sup>58</sup>

What the above accounts show is that these two figures, the hacker and the shooter, come to represent the two extreme poles of autistic representation in culture and society: atypically brilliant, or pathologically violent. This in no way suggests that such a dichotomy is accurate, nor that other figurations within these poles are not equally representative or evocative. For instance, Greta Thunberg has become the figurehead of the climate emergency and named *Time* magazine's person of the year.<sup>59</sup> Yet, as seen in this media analysis, in each of these depictions of shooters and hackers there is an uncomfortable discrepancy between power, cognitive difference, and subjectivity. Thunberg in particular has come under attack

---

*Autism: Diagnosis, Identity and Equality*, ed. by Katherine Runswick-Cole, Rebecca Mallett and Sami Timimi (London: Jessica Kingsley Publishers, 2016), pp. 30-48.

<sup>56</sup> Park, 'Don't blame Adam Lanza's violence on Asperger's'.

<sup>57</sup> Cheretta Clerkley, 'Autism Society Statement on Parkland, Florida School Shooting', *Autism Society* [online], 15 February 2018 < <https://www.autism-society.org/news/autism-society-statement-parkland-florida-school-shooting/> > [accessed 8 May 2018].

<sup>58</sup> Crane, 'Autistic boy, 16, is arrested after 'shooting dead his mom, dad, sister and family friend with a semi-automatic rifle' just minutes before midnight in New Year's Eve massacre'.

<sup>59</sup> Charlotte Alter, Suyin Haynes and Justin Worland, '2019 Person of the Year: Greta Thunberg', *Time* < <https://time.com/person-of-the-year-2019-greta-thunberg/> > [accessed 17 December 2019].

for her indefatigable criticism of the international community and industry's failure to reduce carbon emissions, attacks often directed at her difference and diagnoses. For instance, in 2019 Piers Morgan (now co-hosting the UK news show *Good Morning Britain*) launched this sustained criticism of Thunberg during a debate titled 'Is Greta Thunberg a Force for Change or Inciting Fear?':

Let me start by saying, the message she is delivering, very important and I agree [...] my issue with Greta and I read a column about this yesterday. She's not just a regular 16 year old kid – she has Asperger's syndrome and she has a history through her childhood of depression, of OCD – all diagnosed by doctors – mutism, she went two months without eating, she went months without talking to anyone but her family, and so on and so on. So she's clearly quite, you know, there's a damaged background there to what's going on which should not be, I don't think, ignored. When I watched her the other day, it looked to me like she was now displaying, and you can correct me if you think this is wrong, one of the characteristics of Asperger's is you get a very obsessional interest in a narrow focus issue and you then also can suffer things like pain and fear far more intensely than people who don't have Asperger's syndrome. Put all this together and I saw a vulnerable kid up there, preaching a good message, but doing it now in a way that made me feel uncomfortable. I did not feel comfortable watching her in that condition knowing what I know about her life. [...] Isn't she also terrifying millions of young children to the extent that eco anxiety is now massively on the rise, which is a genuine stress condition now.<sup>60</sup>

Morgan's problem is not her message, but her mode of delivery, as his response came after Thunberg gave an impassioned, angry speech. Noteworthy is the extent to which Morgan feels Thunberg's medical history is an acceptable thing to include in a televised debate as to whether Thunberg is a force for change or an inciter of fear. Framed as concern for her welfare, Morgan lists depression, OCD, mutism, and eating disorder in addition to her autism, encapsulating how neural implantations are not only medically diagnostic, but folk and culturally too: Morgan sees a clearly

---

<sup>60</sup> Piers Morgan, 'Is Greta Thunberg a Force for Change or Inciting Fear?', *Good Morning Britain*, 25 September 2019 (YouTube) <<https://www.youtube.com/watch?v=8fYQGQSqzrw>> [accessed 17 December 2019].

‘damaged background’ bolstered by her medical history. Moreover, that Thunberg makes Morgan ‘uncomfortable’ and that he apportions blame for the rise in the new stress condition ‘eco anxiety’ on Thunberg’s mode of activism, turns the heavily vilified sixteen-year old Thunberg into the perpetrator of Morgan and others’ discomfort. Here, neural implantations of cognitive difference are used to deny Thunberg any subjectivity and identity besides a facet of her othered brain and reducing her remarkable success and talent to being a problematic cause of distress. With this in mind, the chapter now situates itself among existing critical work on autistic representation, in order to foreground how fictional narratives challenge this tendency to put autism on public trial, with particular reference to how generic conventions of courtroom dramas and thriller narratives work in order to reclaim autistic subjectivity from diagnostic and or public criticism and normative violence.

### Autism (Re-)represented

As outlined, the representation and perception of autism has changed dramatically in the decade since Murray published his work on autistic narratives. Autism has become much more culturally mainstream, it has become marketable (in certain expressions), and it has also increasingly become naturalised, which is to say that in line with the neuro-turn it is increasingly considered a facet of brain difference (neurodiversity). This brings with it the problematisation and deconstruction of ‘autism’ as a useful or meaningful diagnostic category in itself: cultural and theoretical shifts that are effacing long-standing narratives advocating for cures.<sup>61</sup> As

---

<sup>61</sup> Recent television shows that celebrate/highlight autistic differences and behaviours like *Parenthood* (NBC, 2010-15), *Atypical* (Netflix, 2017-), and *The A Word* (BBC 2016-), make it increasingly difficult to imagine the ending of Elizabeth Moon’s *Speed of Dark* (2002) being published

a result etiological and causal ideas about autism are evolving. A common contemporary move sees traditional deficit or pathological models of autism shifting into an understanding of 'difference'.<sup>62</sup> Leading this shift is the decline of the dominance of Theory of Mind as an explanatory tool for autistic behaviour and modes of subjectivity. According to Baron-Cohen having a 'Theory of Mind' is the ability to 'infer the full range of mental states (beliefs, desires, intentions, imagination, emotions, etc.) that cause action', which is also 'one of the quintessential abilities that make us human'.<sup>63</sup> Until recently, this theory has dominated the ways in which autism is ontologically understood; however, it is now being thoroughly questioned in terms of its efficacy.<sup>64</sup> David Smukler summarises the problem with this model succinctly, noting that Theory of Mind is 'in effect "mindblind" with regard to autistic perspectives'.<sup>65</sup> This move towards biological models is typical of the neuro-turn and the neural implantation as the psychological 'mind' loses explanatory favour in light of brain based materialism, founding the biological basis upon which difference models flourish in keeping with the contemporary cultural logic of being 'born this way'. However, if this shift to considering autistic personhood is celebrated, it is also cautioned against. Dan

---

today. In the novel autism is congenitally cured and the remaining autistic adults are offered a cure, with the protagonist undergoing treatment at the end of the novel.

<sup>62</sup> See Murray, p.xvi; Kim Davies, 'How Rude? Autism as a Study in Ability', in *Re-thinking Autism*, ed. by Runswick-Cole, Mallett and Tamimi, pp. 132-145; Runswick-Cole, Mallett and Timimi 'Introduction', in *Rethinking Autism*, pp.7-18 (p. 7); and the Neurodiversity movement, which argues that cognitive differences are the expressions of natural and expected variation.

<sup>63</sup> Simon Baron-Cohen, 'Theory of Mind and Autism: A Review', in *International Review of Research in Mental Retardation*, 23 (2000), 169-184 (p.169).

<sup>64</sup> See Morton Ann Gernsbacher and Melanie Yergeau, 'Empirical Failures of the Claim That Autistic People Lack a Theory of Mind', *Archives of Scientific Psychology*, 7.1 (2019), 102-118. After a thorough review of pertinent literature they find 'the claim that autistic people lack a theory of mind is empirically questionable and societally harmful' (102).

<sup>65</sup> David Smukler, 'Unauthorized Minds: How "Theory of Mind" Theory Misrepresents Autism', in *Mental Retardation*, 43.1 (2005), 11-24 (p.22).



Goodley notes that if difference becomes understood in strictly biologist terms, then all behaviours can come to be explained as such; in other words, personhood and subjectivity become the sum of a neurological categorisation.<sup>66</sup>

On the one hand neurodiversity movements broadly agree with popular calls to 'own' your difference, typified in anthems such as Lady Gaga's 'whether life's disabilities left you outcast, bullied, or teased, rejoice and love yourself today, cause baby you were born this way'.<sup>67</sup> On the other hand, plasticity represents the mantra that biology is not destiny. This is a difficult and contested schism to navigate and is argued differently in critical autism studies. For instance, in my discussion of *Limitless's* plastic narrative, cognitive enhancement and neoliberal appropriations of plasticity form a compact rendering Eddie an ethically impoverished character whose sole interest becomes continual self-improvement and expansion of power. This belief in improvement typifies a dominant cultural logic that insists that there must be something we can do to correct, improve, and repair ourselves, with the brain being the ultimate locus of this ideology and underpinning the kind of biopolitics seeking to normalise difference. This is why Vidal and Ortega argue that whilst the mutability inherent to neuroplasticity allows for the concept of neurodiversity (and material cognitive difference), 'neurodiversity advocates tend to minimize the differences among brains within the autistic spectrum so as to support their claims for the existence of a brain-based autistic identity'.<sup>68</sup> In other words, neuroplasticity creates something of a contradiction: it can be seen to explain the range of cognitive

---

<sup>66</sup> Dan Goodley, 'Autism and the Human' in *Re-thinking Autism*, ed. by Runswick-Cole, Mallett and Tamimi, pp.146-158 (p.152).

<sup>67</sup> Lady Gaga, 'Born This Way', *YouTube*, 27 February 2011  
<<https://www.youtube.com/watch?v=wV1FrgwZyKw>> [accessed 12 March 2020].

<sup>68</sup> Fernando Vidal and Francisco Ortega, *Being Brains*, p.185.

types across society as a whole, but when this logic is applied more specifically within the autistic community this same range widens the spectrum to the extent that an autistic ontology is diluted into disappearance. McGuire notes that the introduction of neuroplasticity is effacing ideas of fixity or hard wiring in regard to the brain and self, noting that the 'the normal mind/brain is framed as something that can be eventually achieved'.<sup>69</sup> For her, certain forms of autism advocacy could harness this new understanding to update and displace older understandings of deficit, citing the decline of Theory of Mind as evidence. Yet, it seems also true that this vision of a possible idealised mind/brain can also further castigate cognitive difference or entrench cognitive hierarchies as explored in the previous chapter.

Elsewhere, Rebecca Mallett and Katherine Runswick-Cole highlight how the use of 'autism' is itself contentious; indeed, much as I highlight plasticity's mutable associations and meanings in the introduction and chapter one, they argue 'autism's ability to be flexible is part of its success'.<sup>70</sup> In other words, because autism means many different things to many different people, it has become a flexible implantation in its own right: mutable, developing, and indeed, often ultimately hollow in signification.<sup>71</sup> Today's mix of cultural purchase, by means of capital and commodification;<sup>72</sup> historical associations or misrepresentations;<sup>73</sup> debates over

---

<sup>69</sup> McGuire, *War on Autism*, p.50.

<sup>70</sup> Rebecca Mallett and Katherine Runswick-Cole, 'The Commodification of Autism: What's at Stake?' in *Re-thinking Autism*, ed. by Runswick-Cole, Mallett and Tamimi, pp.110-131 (p.121).

<sup>71</sup> In his review of Mallett and Runswick-Cole's *Re-thinking Autism*, Damian Milton rightly problematises their criticism and dismissal of neurodiversity and material paradigms, as well as the lack of exploration into 'phenomenological accounts of people post diagnosis', something my framework of the neural implantation argues is crucial. Damian Milton, 'Re-thinking autism: diagnosis, identity and equality', *Disability & Society*, 31.10, 1413-1415 (p.1414).

<sup>72</sup> Mallett and Runswick-Cole, 'The Commodification of Autism: What's at Stake?' in *Re-thinking Autism*, pp.110-131 (p.121).

<sup>73</sup> See my concept of 'phantoms of the brain' in the Introduction, referring to the way in which older, often deviant and pseudo-scientific/psychological ideas attach to neuro-material models and

personhood and subjectivity;<sup>74</sup> and biomaterial models and explanations,<sup>75</sup> makes autism an ever-evolving object of scrutiny, biopolitical intervention, and fascination. On the one hand, ‘autistic’ and ‘on the spectrum’ have become colloquial as much as medical terms and form neural accessories acting as casual explanations for odd behaviours in others and the self. Moreover, ‘productive’ representations of autism such as mathematics (*Rain Man*, Levinson 1988), hacking (*Girl with the Dragon Tattoo*, Larsson 2007), detection (*Sherlock*, Gatiss 2010-17), or medicine (*The Good Doctor*, Shore 2017-present) become coveted abilities. On the other hand, despite the above arguments pertaining to more nuanced narrative representation less

---

explanations in contemporary culture and narrative. See also Fernando Vidal and Francisco Ortega’s claim (to which brain phantoms supplement) that ‘the cerebral subject as an anthropological figure is *not* attributable to the contemporary prominence of the brain, nor is it anything “natural,” but exactly the other way around: the cerebral subject was enabled by an early modern reconceptualization of personal identity, independently of any naturalistic knowledge about the brain’. In other words, fascination and brain based ontology pre-date the neuro-turn. I have no disagreement with this; however, as I maintain throughout this thesis, to place today’s brain-culture in an uninterrupted timeline evacuates some of the specific effects brought by the neuro-turn. Vidal and Ortega, *Being Brains*, p.21.

<sup>74</sup> See debates over person first language, Lorcan Kenny, and others, ‘Which terms should be used to describe autism? Perspectives from the UK autism community’, in *Autism*, 20 (2016), 442-462. Note also the shocking revelations that autistic persons die younger suggesting a public and institutionalised apathy towards autistic personhood, ‘People with autism are ‘dying younger,’ warns study’, *NHS* [online], 21 March 2016 <<https://www.nhs.uk/news/neurology/people-with-autism-are-dying-younger-warns-study/>> [accessed 16 July 2019].

<sup>75</sup> On behalf of the Interagency Autism Coordinating Committee (IACC) The Office of Autism Research Coordination (OARC) part of the US National Institute of Health (NIH) published a breakdown of how all US autism funding is split into six research ‘questions’, with the overwhelming majority of the money spent on biomedicine. 1) Screening and diagnosis – ‘Children at risk for ASD will be identified through reliable methods before ASD behavioural characteristics fully manifest’ (11%). 2) Biology – ‘Discover how ASD affects development, which will lead to targeted and personalized interventions’ (30%). 3) Risk factors – ‘Causes of ASD will be discovered that inform prognosis and treatments’ (17%). 4) Treatments and interventions – ‘Interventions will be developed that are effective for reducing both core and associated symptoms, for building adaptive skills, and for maximizing quality of life and health for people with ASD’ (19%). 5) Services – ‘Communities will access and implement necessary high-quality, evidence-based services and supports that maximize quality of life and health across the lifespan for all people with ASD and lead to prevention/pre-emption of the challenges and disabilities of ASD’ (7%). 6) All people with ASD will have the opportunity to lead self-determined lives in the community of their choice through school, work, community participation, meaningful relationships, and access to necessary and individualized services and supports’ (1%). Interagency Autism Coordinating Committee, *2011-2012 Autism Spectrum Disorder Research: Portfolio Analysis Report* [online] <[https://iacc.hhs.gov/publications/portfolio-analysis/2012/portfolio\\_analysis\\_2012.pdf](https://iacc.hhs.gov/publications/portfolio-analysis/2012/portfolio_analysis_2012.pdf)> [accessed 17 July 2019].

focused on cures, autistic people experience a reality of lower life expectancy and exponentially higher incidence of depression.<sup>76</sup> Despite this, they ‘may be less likely to be diagnosed with depression and have support networks in place to help them with mental illness’ meaning ‘they may be more likely to take their own lives rather than be successfully treated’.<sup>77</sup> Additionally, UK employment statistics show that only sixteen percent of autistic people are in full-time work.<sup>78</sup> Thus, while cultural narratives may be improving, social realities are not. Though certainly useful in effecting more nuanced representations of autism, ‘feel-good’ autism narratives like the television series *Atypical* (Rashid, 2017-present) work for neurotypicals similarly to the hollowness of neoliberal identity politics: being an armchair ally happily conceals the dramatically lower life expectancy or reality of indefinite incarceration some autistic people endure simply because you are engaging with a representation of autism that is ultimately made to feel-good. Therefore, crime fiction that casts autism as a guilty implantation can be useful because these are rarely ‘feel good’ (at least until the resolution). This is not to suggest that these crime narratives are somehow more mimetic, or that one should always ‘feel-bad’ reading or viewing an autistic narrative experience; it should go without saying that cultural representation that aims to ‘normalise’ autistic difference in culture is also vital. Rather, I argue that crime narratives are often ‘feel bad’ in that they highlight the ways in which

---

<sup>76</sup> A 2018 study found that autistic people were four times more likely to have depression in their lifetime than neuro-typical people. Chloe C. Hudson and others, ‘Prevalence of Depressive Disorders in Individuals with Autism Spectrum Disorder: a Meta-Analysis’, *Journal of Abnormal Child Psychology*, 47.1, 165-175 (p.165).

<sup>77</sup> ‘People with autism are ‘dying younger, warns study’, *NHS*.

<sup>78</sup> ‘Our Employment Campaign’, *National Autistic Society*, <<https://www.autism.org.uk/get-involved/campaign/employment.aspx>> [accessed 18 December 2019].

contemporary biopolitics and phantom narratives misrepresent, castigate, and subordinate autism and autistic people.

To this extent, contemporary autism narratives are at something of tipping point. In today's culture, long-established (and increasingly scrutinised) understandings of the 'deficit' model are still invoked to explain *aberrance* such as social withdrawal and lack of eye contact (both of which appear in the above articles pertaining to the 'autistic shooter'). Alongside this is the fascination and celebration of *difference*: extraordinary talents, self-justice, and technological ability. In other words, it is no longer sufficient to argue that the neural implantation of autism today acts only to 'other' people through deficit or pathological models. McGuire's work aligns with my formulation of the neural implantation in that today's neoliberal culture 'is increasingly engaged in the process of organising various non-normative thoughts, behaviours, responses, movements and affects into graded pathological spectrums anchored by oppositional poles of life and death'.<sup>79</sup> These are the extreme poles of vital worth (hacker) and violent deviance (shooter). However, what is emerging is that it is not only within the normal/atypical paradigm that biopolitical oscillations between life and death exist (as is traditionally understood), but within neural implantations themselves. In terms of cognitive difference, a fundamental failing of the hegemonic neoliberal view of health is that certain pathologies, or rather, certain persons with certain 'levels' of pathologies, are seen as useful, which is to say economically viable as in the Jeffrey Weeks model explored in the introduction. With autism, for instance, the hacker is represented as a highly

---

<sup>79</sup> Anne McGuire, 'Life without Autism: A Cultural Logic of Violence', in *Re-thinking Autism*, ed. by Runswick-Cole, Mallett and Tamimi, pp.93-109 (p.106).

productive figure, a techno-vigilante far beyond the capacity of neuro-typical persons. Autism here does not represent a pole of death, but modern techno-life, providing they are kept 'on a tight leash' - eerily similar to the arguments of the ERD in *Nexus*.<sup>80</sup> Autistic shooters, on the other hand, represent the complete opposite; their actions suggest that they deserve death because they bring death. They are the corrupted child, the child with which the plastic brain and its discourse of flexible productivity cannot help. Like conduct disorder their pathology is an implanted mark of Cain and the presence of 'autism' in reportage of such events remains problematically sticky and associative.

Both the hacker and the shooter are pathologised through their behaviours and actions. The autistic hacker's single-mindedness to the point of obsession becomes an essential component to their technological craft. Elsewhere, the autistic shooter's 'autism', though often categorically meaningless, acts as an explanatory/demonising/containing tool for heinous actions. The autistic shooter has such currency now because discourse pertaining to the 'epidemic' of mass shootings runs parallel to similar discourse framing an autism 'epidemic'.<sup>81</sup> Likewise, the hacking 'epidemic' runs parallel to the fear/need of the autistic hacker to both

---

<sup>80</sup> Commenter in Fionn Hargreaves, 'British schoolboy, 15, posed as a CIA director to access secret military reports and taunted FBI agents with chilling threats'.

<sup>81</sup> Writing in the *Atlantic*, Derek Thompson argues that 'if it seems like the shooting are becoming more frequent, it might be because mass murder can catch on like an epidemic'. Derek Thompson, 'Mass Shootings in America Are Spreading Like a Disease', *The Atlantic*, 6 November 2017 <<https://www.theatlantic.com/health/archive/2017/11/americas-mass-shooting-epidemic-contagious/545078/>> [accessed 8 March 2020]. This discourse of contagion is similarly applied to autism, see Sharon Kirkey, 'Is the 'autism epidemic' real? Researchers say over-diagnosis to blame for spike in number of cases', *National Post*, 22 August 2019 <<https://nationalpost.com/health/autism-epidemic>> [accessed 3 March 2020].

explain the occurrence of the outbreak, and contain it.<sup>82</sup> Murray was right to include ‘fascination’ in the title of his book; however, as this chapter makes clear the narratives he chose have, naturally, somewhat developed into ‘characters’ in their own right. This chapter’s literary analysis is therefore framed around the two current poles of the hacker and the shooter in contemporary literature, film, and television.

### House Rules

*House Rules* is a sentimental legal drama revolving around Jacob, an eighteen-year-old with Asperger’s syndrome, a form of autism which the most recent *Diagnostic and Statistical Manual* collapsed into the more general Autism Spectrum Disorder. For this reason, I will refer mainly to Jacob as being autistic, rather than having Asperger’s. Jacob is described as ‘intelligent’ but struggles in certain social situations. He also has some difficulty communicating, but this is mostly due to his literality. Finding his friend and assistant Jess dead in the house she is sitting, and recognising his brother Theo’s footprint in the house, he follows the ‘house rules’ to always look after your brother and frames the scene by moving her body to try to protect Theo. Behaviours that typify his autism diagnosis, including flat affect and poor eye contact, as well as his obsession with forensic science, come to bear in police detective Rich’s belief that he is guilty. His mother Emma is equally unsure whether Jacob killed Jess, but after the trial the truth emerges that voyeuristic Theo saw Jess fall and hit her head, leaving his footprint when he ran away from the scene. Though Jacob is not guilty, nor accused of ‘shooting’, the social and cultural assumption of autistic

---

<sup>82</sup> Jefferson Graham, ‘We’re in a hacking epidemic, and it’s user beware’, *MSN*, 19 March 2017 <<https://www.msn.com/en-nz/money/topstories/were-in-a-hacking-epidemic-and-its-user-beware/ar-BBymddz>> [accessed 30 May 2018].

violence underscoring the narratives and discourse constructing the ‘autistic shooter’ are foundational to the assumption of Jacob’s guilt. In the reading that follows I argue that ‘autism’ is treated as a guilty object in this novel’s fictional courtroom, one that reduces Jacob to the workings of his atypical brain by both the prosecution, who seek to align it with deviant psychopathy, and the defence, who seek to secure insanity, in order to problematise the damaging assumptions neural implantations of autism can create.

The biomolecular nature of Jacob’s autism is a dominant theme in *House Rules*. Not only does this reflect the materiality brought by the neuro-turn, it also necessarily sets up the debate surrounding his guilt and culpability during the trial. This highlights some of the difficulties that arise from neural implantations of autism because of the normative biopolitical imperatives underpinning it. The novel takes the form of a series of first-person accounts, presented from each main character’s perspective. Emma’s narrative opens the novel and she quickly establishes that ‘Asperger’s is a label to describe not the traits Jacob *has* but rather the ones he lost’, in other words, subscribing to the deficit model of autism.<sup>83</sup> For Emma, autism is not a matter of natural difference, but a material condition with often debilitating effects. In fact, when a blogger from ‘Neurodiversity Nation’ approaches Emma on her driveway, she treats them like religious zealots handing out tracts. ‘Since’, Emma notes, ‘there’s no cure yet for Asperger’s, we treat the symptoms, and for some reason, if I regulate his diet his behaviour improves [...] binding and removing toxins that Jacob’s body can’t do itself’.<sup>84</sup> For her, such toxins are the causes of the autistic

---

<sup>83</sup> Jodi Picoult, *House Rules* (London: Hodder & Stoughton, 2010), p.5.

<sup>84</sup> *Ibid.* p.43.



expressions she dislikes, the ones that make her son at times a 'monster'.<sup>85</sup> Emma is unable to understand Jacob's autism as anything but negative: and constantly fights against the belief in it being a permanent implantation. Indeed, in terms of the ontological effects, Emma, ironically, seems less able to empathise with Jacob's autistic subjectivity than mourn what she considers she has lost (normality) and what she has gained (an occasionally autistic monster). Emma has a level of distrust towards science, which highlights a contradictory tension that seems to typify many aspects of the neural implantation.<sup>86</sup> On the one hand, 'yet' suggests she is holding out for a cure which would be created by neuroscience and medicine, on the other hand she is suspicious of vaccinations despite institutional science discrediting the link. She is certain of a 'connection' between vaccinations and autism based on Jacob's experience, claiming her 'son looked like any other two-year old until he had a round of shots'.<sup>87</sup>

Jacob explains his autism in similarly material terms. He is obsessed with forensic science to the extent that 'watching [*CrimeBusters*] daily is as important to [him] as taking insulin would be to a diabetic'.<sup>88</sup> This immediately aligns his obsessive actions as being expressions of his autistic brain. There is little subtlety in the novel, but it does reflect the ontological and discursive effects of neural implantations of autism. For instance, there is no suggestion that he watches *CrimeBusters* daily (granted, to an exacting timeframe) simply because forensics personally fascinates him. It is always the autistic explanation, echoing Goodley's concern about catch-all

---

<sup>85</sup> Ibid. p.175.

<sup>86</sup> Consider the different ways I argue autism is presented in contemporary culture, as well as the debate between for example, identity first or person first descriptions of cognitive difference.

<sup>87</sup> Picoult, p.47.

<sup>88</sup> Ibid. p.20.

biologism and concerns of the elision or erasure of unique subjective character formation in the wake of neuro-models as discussed in the introduction in relation to possible epistemological tensions brought by the imbrication of cultural and medical narratives. In other words, subjectivity becomes neurobiology, and to paraphrase Rose and Abi-Rached: atypical person is what atypical brain does.<sup>89</sup> Similarly, as we see with the neuro-turn's flattening of psychological models, Jacob explains that unexpected contact makes him scream 'not out of fear but because it sometimes feels like [his] nerve endings are on the outside'.<sup>90</sup> However, Jacob's comic suggestion that he knows a peer 'has a little bit of Asperger's in him' because 'it's like gaydar; I can tell', brings Foucault's identification of the perverse implantation into harmony with this thesis's identification of the neural implantation.<sup>91</sup> In other words, where the perverse implantation saw perversities implanted into bodies and subjectivities, Jacob recognises the same model in regards to his and other cognitive differences. It is a recognition of ontological subjective effects of the implantation, which, though imposing a material model, conversely fleshes out his characterisation. Jacob is also fluent in the explanatory models being produced in the neuro-turn; for him, intangible 'love' 'doesn't have the right receptors in the brain', dopamine, however, has a material grounding from which he can make sense.<sup>92</sup>

---

<sup>89</sup> Rose and Abi-Rached use the phrase 'mind is what brain does' to explain the shift toward brain-based conceptions of the self; *Neuro*, p.3.

<sup>90</sup> Picoult, p.293.

<sup>91</sup> *Ibid.* p.65.

<sup>92</sup> *Ibid.* p.418-19. See the discursive presence of certain neurotransmitters and hormones such as serotonin and oxytocin today. These chemical compounds are effecting the flattening effect that encapsulates much of the neuro-turn. Psychological states and feelings become reducible to the presence and concentration of these chemicals. See, Sandee LaMotte, 'Are you in love or just high on the chemicals in your brain? Answer: Yes', *CNN*, 14 February 2020

Police detective Rich also offers a narrative perspective that understands Jacob through neuroscientific models. If Emma eschews the born this way narrative in the hope of piecemeal change or a future cure, Rich thinks antithetically. He explains Jacob ‘can’t exercise himself into a new personality. He can’t move to another school district and start over. He’ll always be the kid with Asperger’s’.<sup>93</sup> In suspecting guilt, Rich allows phantom stereotypes of cognitive difference and violence to dictate his understanding of action: as rigid, fixed, and dramatically opposite to plastic potential and notions of ideal and limitless cognitive ability. These are examples of the neuromolecular gaze dominating autism and difference in the novel. They are crucial in foregrounding the trial’s dual stances of guilty by biomaterial insanity (defence), or guilty by neuropsychopathological criminal deviance (prosecution). The narrative conceals the reality of Jess’s death until the end, and this narrative device not only furthers the ambiguity surrounding violence and autism but compounds the credibility of the argument that Jacob’s autism could in some way have caused him to kill Jess.

David T. Mitchell and Sharon Snyder coin ‘narrative prosthesis’ to explain narratives that use disability as plot devices to build sentiment or tension.<sup>94</sup> *House Rules*’ plotting employs this throughout; indeed Michelle Jarman points out how ridiculous it is, given how close Emma is to Jacob (and the trial), that she never directly asks Jacob what happened.<sup>95</sup> There is little doubt that autism is primarily a

---

<<https://edition.cnn.com/2020/02/14/health/brain-on-love-wellness/index.html>> [accessed 8 March 2020].

<sup>93</sup> Picoult, p.247.

<sup>94</sup> David T. Mitchell and Sharon L. Snyder, *Narrative Prosthesis: Disability and the Dependencies of Discourse* (Ann Arbor: University of Michigan Press, 2000).

<sup>95</sup> Michelle Jarman, ‘Disability on Trial: Complex realities Staged for Courtroom Drama – The Case of Jodi Picoult’, *Journal of Literary & Cultural Disability Studies*, 6.2 (2012), 209-225 (p.216).

narrative prosthesis for Picoult, a writer who has seen considerable commercial success dealing with dramatic legal and ethical stories pivoted on contemporary issues, from school shootings to child sexual abuse, to medical emancipation, yet the crucial consideration is what this prosthesis tells us about neural implantations of autism. Primarily it shows how mutable and fickle attitudes are to the object and discourse of 'autism'. In *House Rules*, autism is Janus-faced and represents different cultural facets to different characters. Firstly, in a comparison to Eddie Mora, Jacob is repeatedly referred to as being 'limited'; his diet is limited, his bail is limited, school is off-limits, he is legally defined as limited through the Americans with Disabilities Act, and his interpersonal relationships are described as limited. For Emma, and despite her reasoning that autism is a material condition, 'autism' also has a moral dimension, explaining that 'there are some teachers who see the greater good in Jacob'.<sup>96</sup> This is typical of the autism advocacy McGuire derides as furthering the logic of 'normative violence' against autism, because it suggests that a special moral dispensation is necessary to see beyond the problems of autism. Emma's point is that Jacob's maths teacher wrongly assumed he would be teaching an exciting savant, only to be disappointed by a messy, literal student. These stereotypical prostheses drive detective Rich's suspicion.

Jacob uses a police radio to intercept discussions and locations of crime scenes due to his interest real crime. When Rich first notices Jacob in a different crime scene to Jess', he thinks 'there's something just the tiniest bit...well...*off* about him. His voice is too flat and high; he won't make eye contact'.<sup>97</sup> This links to the

---

<sup>96</sup> Picoult, p.73.

<sup>97</sup> Ibid. p.36.

discussion of Gladwell's article in which professionals find that there was simply something 'off' about LaDue. This relatively neutral impression of Jacob's difference becomes much more infected with stereotypes of autism in a later meeting between the two of them; for Rich, Jacob's voice now 'seems almost computerised, it's that mechanical'.<sup>98</sup> Indeed, knowledge of diagnosed 'autism' allows Rich and others to depersonalise Jacob into the sum of his supposedly defective parts. Jacob becomes the object of 'autism' which undermines his personhood and subjectivity to the extent that Rich abuses this knowledge during his interrogation. He tricks Jacob into thinking he might be able to help with the case; however, the questioning quickly becomes impossible for Jacob to navigate without guidance. He is arrested and Emma, now outside the office, shouts to Rich 'you wouldn't interrogate someone deaf without an interpreter!'<sup>99</sup> While these examples reflect the novel's need to build suspense pre-trial, they also show the range of injustices that occur alongside neural implantations of autism. From the fact that Jacob was fired shortly after revealing his autism diagnosis, to the institutional prejudice Jacob receives from the police, autism provides an open space for abuse in society, and it is through the conventions of fictional courtroom drama that these are rendered most clearly, as the next section will show.

The fictional courtroom holds particular cultural resonance in America. From *The Crucible* (Miller, 1953), *Twelve Angry Men* (Lumet, 1957) and *To Kill a Mockingbird* (Lee, 1960; Mulligan, 1962), through to the legal dramas of the 90s—*Matlock* (Hargrove, 1986-95), *Law & Order* (Wolf, 1990-2010), *JFK* (Stone, 1991), *A*

---

<sup>98</sup> Ibid. p.144.

<sup>99</sup> Ibid. p.195.

*Few Good Men* (Reiner, 1992), *Philadelphia* (Demme, 1993), *The Practice* (Kelley, 1997-2004), *Ally McBeal* (Kelley, 1997-2002), and the twenty-first century's *Erin Brockovich* (Soderbergh 2000), *Damages* (Kessler, 2007-2012), *The Good Wife* (King, 2009-2016), and *Suits* (Korsh, 2011-2019), courtroom drama has been a mainstay of fictional, as well as real legal narratives (the trials of OJ Simpson and Michael Jackson) and the quotidian dramatics of *Judge Judy* (Switzer, 1996-present). The courtroom, I argue, is a near perfect microcosm of society. There is the public (represented by both passive attendees and active jurors), judgement, experts, witnesses, morality, ethics, journalism, narratives, disciplinary powers, and motive. As such, courtroom dramas are employed to tackle or highlight injustice and have produced long-lasting social and cultural effects in terms of, among others, racism (*To Kill a Mockingbird*) and homophobia (*Philadelphia*). However, it is perhaps with issues of disability (including atypicality) that the fictional courtroom can best be employed to highlight systemic prejudice and indifference, particularly given the fact that in reality, 2017 saw 10,000 people die in America waiting for their disability legal cases to be resolved.<sup>100</sup> There is a sense that the human narratives that are being damaged in real courts can be held to scrutiny in fictional counterparts. This is because the fictional courtroom is a space in which the biopolitical imperatives, disciplinary powers, and poles of life, personhood, and death underpinning the neural implantation are laid bare and tacitly put on trial themselves. This is what happens in *House Rules*: as much as autism becomes cast as the guilty object, the imperatives

---

<sup>100</sup> Terrence McCoy, '597 days. And still waiting', *Washington Post*, 20 November 2017, <[https://www.washingtonpost.com/sf/local/2017/11/20/10000-people-died-waiting-for-a-disability-decision-in-the-past-year-will-he-be-next/?utm\\_term=.de8afcc4c070](https://www.washingtonpost.com/sf/local/2017/11/20/10000-people-died-waiting-for-a-disability-decision-in-the-past-year-will-he-be-next/?utm_term=.de8afcc4c070)> [accessed 14/02/19].

that enable/will this to happen are similarly laid bare. This is established through the courtroom's mimetic reflection of stories and narratives circulating under the neuromolecular gaze of 'autism'.

Writing in 1999 on the courtroom in popular culture, David Ray Papke describes a contradiction in that while fictional courtrooms dominated in culture, particularly television, a survey found that 47% of people thought courts to be racially biased, and 90% thought corporations to have an unfair advantage. In his words: 'is the courtroom trial dead as a civic institution? Perhaps, but interestingly enough, pop cultural courtroom trials continue to inspire confidence and proffer encouraging lessons about law in American life'.<sup>101</sup> Papke's reading at the turn of the century is optimistic. However, I argue his understanding holds that fictional trials act like Fredric Jameson's conception of the 'fantasy bribe'. For Jameson, popular narratives 'cannot manipulate unless they offer some genuine shred of content as a fantasy bribe to the public about to be so manipulated'.<sup>102</sup> Here, disillusionment with the reality of court proceedings represents some form of crisis in a country whose legal constitution is heralded above almost everything else. These fictional courtrooms, then, which echo societal unease with unethical legal practices as well as contemporary concerns such as bioethics, are ultimately contained by the tight knit friendliness and veracity of the fictional law firms, which tend to succeed against structural prejudice often in a David versus Goliath format. In short, the real problems of the legal system are forgotten among the more palatable fictional 'case-

---

<sup>101</sup> David Ray Papke, 'The American Courtroom Trial: Pop Culture, Courthouse, Realities, and the Dream World of Justice', *South Texas Law Review*, 40 (1999), 919-932 (p.920).

<sup>102</sup> Fredric Jameson, 'Reification and Utopia in Mass Culture', *Social Text*, 1 (1979), 130-148 (p.144).

of-the-week' courtroom dramas typical of the 90s and turn of the century. It is also clear that fictional legal dramas are hyperreal and unfold in courtrooms that do not and cannot exist in today's society given the reality of systemic prejudices against certain groups and individuals. In the Disneyland of courts, somebody always has your back: be it plucky lawyer, researcher, juror, or family member.<sup>103</sup>

Papke concludes: 'the real trial has been supplanted ideologically by the pop cultural trial [...] The pop cultural trial not only contributes mightily to the popular understanding of law but also transports us to the dream world of justice'.<sup>104</sup> Though many of the problems associated with this utopian bribe remain typical of the generic format today, suggestions that the fictional courtroom seems to hold more narrative and discursive power and trust than its real counterpart makes the fictional courtroom a particularly fertile ground for analysis of neural implantations of autism. For instance, in *The Good Fight* (King, 2017-), the spinoff of the acclaimed *The Good Wife*, justice is not always seen to be done because it is working against the backdrop of a Trumpian politics of which it is highly critical. In a country in which the propelling force of hitherto hegemonic neoliberalism is being challenged by reactionary and protectionist politics there is decreasing appetite for the flippant or facetious attitudes to criminality and unethicness (*Limitless*), or utopian, idealistic containment of the case-of-the-week format (*Ally McBeal*). Put simply, social and political injustices have become too mainstream and frankly too non-liberal for too long to contain 'a dream world of justice'; the fantasy bribe has lost its appeal and its

---

<sup>103</sup> This concept of hyperreality and example of Disneyland is taken from Jean Baudrillard, *Simulacra and Simulation*, trans. by Sheila Faria Glaser (Ann Arbor: The University of Michigan Press, 1994).

<sup>104</sup> Papke, p.932.



ability to contain. Much is the same in *House Rules*, in which the expectations of a sentimental 'disability' drama are not met; there is no expected fight for justice in court, there is only a court in which 'autism' is almost automatically made guilty and put unfairly on trial.

Before returning to *House Rules*, it is worth examining research undertaken regarding the ways in which real courts view autism. Christine N. Cea writes that autism should be made evident to the jury to avoid 'the effect of negative demeanour evidence'.<sup>105</sup> For example, if an autistic defendant seems remorseless, lacks eye contact (as reported in the case of Nikolas Cruz above), or is overly repetitive, and the jury is not aware of an autism diagnosis to 'explain' these atypical expressions, then jurors may be biased against the defendant. Contra to this, in her interview study with Californian judges, Colleen M. Berryessa found that, while 'on the whole [...] judges were firm in their beliefs that their attitudes and decisions are not affected by the media coverage surrounding the Sandy Hook shooting [...] judges vocalised that they believe the Sandy Hook coverage has negatively affected, frightened, and misled the public, especially surrounding the likelihood of violent behaviour of individuals with hfASD'.<sup>106</sup> In other words, placing 'autism' on the docks takes place, given the figuration of the autistic shooter, in a *Catch-22*: if you do not mention it people will find behaviours suspect, if you do, people may automatically find you suspect. That such problems occur in reality goes towards Murray's description of 'witnessing' autism. With such prejudice and predisposition it is likely only through

---

<sup>105</sup> Christine N. Cea, 'Autism and the Criminal Defendant', *St. John's Law Review*, 88.2 (2014), 494-529 (p.519).

<sup>106</sup> Colleen M. Berryessa, 'Judicial Perceptions of Media Portrayals of Offenders with High Functioning Autism Spectrum Disorders', *International Journal of Criminology and Sociology*, 3 (2014), 1-22 (p.14) <doi:10.6000/1929-4409.2014.03.04> [accessed 17 July 2019].

narratives challenging or highlighting these problems that such witnessing will cease, hence the importance I place in the meaning produced in fictional courtroom narratives.<sup>107</sup>

*House Rules* places autism on trial and establishes Jacob to be a violent killer encapsulating the figure of the 'autistic shooter'. In doing so it rejects the fantasy bribe of an idealistic and safeguarding legal process because Jacob's innocence is eventually confirmed. Reflecting the plasticity of 'autism' as discussed above, both the defence and the prosecution take autism and mould it into different narratives, the former builds a case for insanity, the latter weaves a picture of sociopathic violence. Jacob's defence lawyer Oliver is young and inexperienced and in this sentimental legal drama the expectation may have been that Oliver works tirelessly and creatively to successfully prove Jacob's innocence (in the cultural vein of *Erin Brockovitch*), but the novel, reflecting a verisimilitude to the societal figuration of the violent autistic shooter, does not allow this. Rather, Oliver remains utterly out of his depth and succumbs, perhaps realistically, to pleading Jacob's insanity. The case against him is not good. Jacob has admitted to moving Jess's body and to staging the crime scene, he has previously visited crime scenes, and has journals that say in regards to the particulars around Jess's death 'SOLVED:ME'.<sup>108</sup> The initial hope that Jacob's autism will render him incompetent to stand trial is problematic enough in terms of autistic subjectivity and agency; however, Oliver realises that autism alone is insufficient, telling Emma, 'I, uh, think we need to plead insanity'.<sup>109</sup> In other words,

---

<sup>107</sup> Murray, *Representing Autism*, p.114.

<sup>108</sup> Picoult, p.452.

<sup>109</sup> *Ibid.* p.275.

autism is enough of a neural implantation to make him guilty, but not sufficient to absolve him in its own right. Subsequently, autism becomes a matter of spin; having first ‘flattened’ the particularities of Jacob’s unique autistic subjectivity with the general description of autism to the court, new false medical narratives and identities are attached to make him appear legally and convincingly insane. When he tells Jacob the plan, Jacob replies ‘I’m not crazy!’.<sup>110</sup> Oliver counters saying it is a legal not medical term, but Jacob is aware of the legal meaning reciting ‘a person isn’t responsible for criminal conduct if, as a result of mental disease or defect [...] I don’t have a mental disease or defect. I have a quirk. Right, Mom?’.<sup>111</sup> Exasperated, Oliver replies, ‘Well, Jacob, either I run the insanity defence or you can take that mental quirk right back to prison’.<sup>112</sup>

The result is that Jacob effectively is guilty until a performed autism proves him insane. The defence strategy seeks to magnify autism and put it firmly on the stand so that the jury can plainly see how ‘different’ Jacob is ‘from the rest of us’.<sup>113</sup> Not only does the novel’s narrative use autism as a prosthesis, but more specifically, being a societal microcosm, the trial’s narrative does too. Autistic myth becomes more important than truth, than Jacob himself, providing it can show itself to be an insane sideshow. In Oliver’s words: ‘if I’m playing the disability card, they have to see Asperger’s manifesting itself in its full glory’.<sup>114</sup> Oliver makes a series of

---

<sup>110</sup> Ibid. p.277.

<sup>111</sup> Ibid.

<sup>112</sup> Ibid.

<sup>113</sup> Ibid. p.380.

<sup>114</sup> Ibid. p.377.

accommodating requests to the judge, including sensory breaks, Emma's presence on the defence table, and not using the gavel, which are all granted.

The sensory break room is erected at the back of the courtroom. Jacob almost immediately uses it when he begins screaming after the prosecutor scrunches up a piece of paper and drops it on the floor. Indeed, Rich explains that such accommodation has become a joke among those participating in the trial; however, his main concern is one of precedence:

If the court was willing to bend over backward for Jacob Hunt's Asperger's syndrome, how long will it be before this is used as a precedent by some career criminal who insists that going to jail will inflame his claustrophobia. I'm all for equality, but not when it erodes the system.<sup>115</sup>

However, the system already does not work for everybody, which is precisely why the judge approves the allowances in the first place. The judge says 'that's the nature of America – we make room for everyone' which mirrors some of Berryessa's findings that the judiciary acknowledge difference, while worrying that the public cannot.<sup>116</sup> Oliver's strategy is to force this difference into plain sight. During his opening statement he purposefully puts his hand on Jacob's shoulder to make him flinch before telling the jury 'that a person with a neurological disorder like Asperger's who commits a crime – a person like Jacob – can't be held responsible'.<sup>117</sup> Indeed, it becomes clear that Oliver is playing a very specific kind of disability card: the pathological neural implantation. He bluntly explains that Jacob does not act atypically because he is sociopathic (with psychological undertones), but rather

---

<sup>115</sup> Ibid. p.442.

<sup>116</sup> Ibid. p.379.

<sup>117</sup> Ibid. p.485.

‘because his brain simply doesn’t function that way’.<sup>118</sup> Yet playing fast-and-loose with labels comes at a loss of Jacob’s subjectivity and agency. Oliver tells Jacob: ‘you’re not crazy [...] I’m just trying to get the jury to see you as legally insane’.<sup>119</sup> However, given everything that happens during the trial (and throughout his life) Jacob tells him that he is ‘not a big fan of labels’. There seems to be little consideration for the ease with which everybody expects Jacob to sidestep his legal status of sanity because everybody unquestionably accepts a guilty fiction as fact: that Jacob who has little substantial history of violence could have killed his mentor Jess.

The defence hires a forensic psychiatrist who builds a story to explain how Jacob’s autism contributed to killing Jess, albeit as part of an insane break from reality. She tells the court Jacob ‘might know that people with tears in their eyes are sad, but he’d be making a cognitive judgement, not an emotional one. For someone with Asperger’s, this lack of empathy is a neurobiological deficit, and it affects behaviour’.<sup>120</sup> All this material explanation bolsters Oliver’s closing remarks, in which he asks the jury to consider ‘whether [Jacob] understood right from wrong in that moment the way you understand right from wrong’, bolstering his trial-long strategy of divide and conquer between normal and different cognition.<sup>121</sup> Indeed, in this moment the reader assumes the role of the jury, a role the reader/viewer often tacitly takes when reading/viewing fictional courtroom dramas. However, unlike the jury, who are simply *told* what is, or is not, going on in Jacob’s mind the reader has

---

<sup>118</sup> Ibid.

<sup>119</sup> Ibid. p.505.

<sup>120</sup> Ibid. p.515.

<sup>121</sup> Ibid. p.541.

access to Jacob's first-person narrative. For the jury, Jacob's guilt is already established, the only question remaining is whether he was insane and not culpable, or deviant and blameable. For the reader, the certainty of neither guilt nor innocence has been established, in fact, despite the 'feel bad' narrative of the courtroom, the sentimental genre which Picoult is famous for retains the expectation that Jacob's innocence will be revealed and acknowledged, which it is in the final pages.

Where the defence harnesses medical models of autism to build a case for material causes of insanity, the prosecution fronted by Helen Sharp aims to reduce autism to a psychological trait. In her cross-examination of Dr Murano, the defence's medical authority, Sharp strikes a mocking tone: 'being the center of his own universe. Self-preservation is the one inviolable rule. Temper tantrums and anger management issues . . . Sounds to me, Dr Murano, like Asperger's is the new *selfish*'.<sup>122</sup> She continues her attack asking Murano how she arrived at Jacob's diagnosis. Murano replies that she administered a series of tests such as IQ and social interaction. Sharp now establishes her psychological argument, asking if there is any material test (bloods, toxicity, brain scans) to identify autism. This is not incidentally a criticism shared by many who are sceptical about the use of autism as a diagnostic category in its own right.<sup>123</sup> Murano concedes and Sharp continues: 'the diagnosis you make and the assumptions you have about Jacob are not based on anything

---

<sup>122</sup> Ibid. p.496.

<sup>123</sup> While the prosecutor tries to argue that a lack of material aetiology can only mean criminal (psychological) deviance in this fictional case, in reality researchers use the same argument to highlight the futility of the diagnosis of 'autism' itself. See Richard Hassall, 'Does everybody with an autism diagnosis have the same underlying condition?' in *Re-thinking Autism*, ed. by Runswick-Cole, Mallett and Tamimi, pp.49-66. See Milton, 'Re-thinking autism' for a criticism of this deconstructive account of autism.

other than your own opinion'.<sup>124</sup> This kind of psychological profiling allows Sharp to argue that Jacob's Asperger's traits and expressions, which Murano agrees include poor social skills and lack of empathy, are 'also the traits you find in cold-blooded killers'.<sup>125</sup> The prosecution is creating a story of a deviant psychology, harnessing existing phantom associations between autism and violence to make her case.

During the case, Sharp aligns Jacob's 'obsession with violent crime' with an incident in which he 'assaulted a girl' in school.<sup>126</sup> Sharp's intention is to attach autism to psychopathy through a series of clever debates. A different psychiatrist attempts to correct Sharp, saying that the differences in autistic persons 'usually makes them the prey for psychopaths, rather than the predators'.<sup>127</sup> Sharp returns to the documented instances of Jacob's aggression and forces the psychiatrist to admit that an insanity case cannot be simultaneously built on instantaneous 'snapping' if such a snap continues long enough to set up a crime scene. This is in many respects fair, dramatic, legal game; however, what *House Rules* highlights in its courtroom is precisely that the legal system does not work for everybody, and nor does society as a whole. People believe Jacob to be guilty because they are willing to assume the glove will fit. The troubling associations between deviance, violence, and autism Sharp spins in the courtroom reflect a verisimilitude people recognise. This is the crux

---

<sup>124</sup> Picoult, p.499.

<sup>125</sup> Ibid.

<sup>126</sup> Ibid. p.527; Evidence of Jacob's obsession with violent crime comes from his fascination with forensic science and his meticulous note taking of criminal television episodes. However, this triangle of amateur crime solving, autism, and deviance has a long literary history. Sonya Freeman Loftis argues that the 'autistic detective' – Jacob's characterised aspiration – has its roots in Sherlock Holmes, noting 'the implied connection between autistic traits and criminal behaviour continues to haunt the original Sherlock Holme's stories and later popular culture adaptations of these tales'. Sonya Freeman Loftis, *Imagining Autism: Fiction and Stereotypes on the Spectrum*, (Bloomington: Indiana University Press, 2015), p.32.

<sup>127</sup> Picoult, p.518.

of the problem. Jacob's cognition is simply Jacob's cognition and the phenomenological present narrative of autism as experienced by Jacob is his, he does not imagine life as negative or deficient because it is just his way of life. However, this subjective experience – the formation of which involves the biopolitical imperatives underpinning neural implantations, disablism, and prejudicial phantoms – is made other by these external factors.

To this extent, I argue that there is a feel-bad autism narrative in the novel that goes against the grain of the expected feel-good sentimentalism of the genre. By 'feel-bad autism' I do not seek to imply a response that elicits bad-feeling for the mere fact that Jacob is autistic. Rather, it is feel-bad in the sense that the legal trappings and autistic phantoms of the brain that see Jacob turned into a guilty autistic object become overt and recognisable as everyday actions that the reader themselves may propagate and experience narratively through Jacob. Of course, Picoult returns to generic convention in the final pages by refusing to let such bad feelings close the narrative; however, it is notable that the belief in a hyperreal safeguarding legal system does not save Jacob. He only avoids prison or the legal implantation of insanity by finally explaining how he had been protecting Theo. Now, in a catch-all umbrella term like autism, which includes persons who are non-verbal, how can the reader feel good about such an ending? The narrative establishes this feel-bad complicity between reader and narrative because, despite the legal setting, there is no moment of cathartic confession or reveal other than by Jacob himself. This might seem agential, as in the autistic narratives considered in the next section, but this reading is quickly negated by the preceding events in which Jacob has little agency during the trial, and more specifically that his brother Theo did not confess



or volunteer his knowledge: that he saw Jess fall and hit her head while he was spying on her. Moreover, Jacob's act is utterly selfless, carried out to protect his brother. When one considers the readiness of those closest to him in presuming guilt, any feel-good sentimentality of the ending is diminished.

Indeed, whilst as Jarman argues it is somewhat ridiculous to imagine that nobody directly asks Jacob (who is verbal) what had happened, I argue the narrative is constructed to reflect Jacob's increasing loss of agential voice during the trial. Not only does his time on the stand end disastrously given the adversarial nature of the legal system, but also his first person sections diminish as the novel climaxes. Further, Oliver takes Jacob's pencil, his only sanctioned communication, away from him whilst ironically telling the jury 'the legal system in America works very well if you happen to communicate a certain way, a way Jacob *doesn't*'.<sup>128</sup> When Jacob does finally get a chance to 'tell the truth' to the jury, which is to say, the truth about him creating the crime scene, Oliver reflects that one upside is that he looks more insane than ever. The title of the novel is revealed as being the reason why Jacob could not tell the truth about seeing Theo at the scene, because the house rule is 'take care of your brother'.<sup>129</sup> This is a sentimental and convenient narrative trick. However, it proves essential in establishing the way in which the novel portrays the myth of the autistic shooter in the microcosm of court. Nobody allows 'Jacob' to be on the stand. What is put on trial is autism, and *House Rules* shows its cultural, social, medical, and legal mutability. Mallett and Runswick-Cole consider diagnostic labels such as autism as being akin to 'essential tourist information for those travelling to or through the land

---

<sup>128</sup> Ibid. p.543

<sup>129</sup> Ibid. p.536.

of impairment'.<sup>130</sup> Indeed, in the claustrophobic land of the trial the signposts point towards deviance: obsessive, insane, asocial, violent, no empathy, and erratic. As readers and judges of this courtroom that places autism on the stand the situation is clear, the discourse pertaining to the figuration of the autistic shooter is infectious, problematic, and misleading.

*House Rules* is not alone in its treatment and use of autism as a guilty set of codes and discourses for plot purposes. Antoinette van Heugten's *Saving Max* (2010) reflects a similar story in which an autistic teenager, Max, is incorrectly put on trial for the murder of a friend he makes at a specialist care facility. However, what is interesting with Max is that the lines between the two figures of the shooter and hacker become blurred when he hacks into the hospital computers trying to obtain evidence for his mother, who is desperately trying to save him by more traditional detective means. Max thus joins a league of autistic hackers who use their abilities to help themselves and others. The difference perhaps is perspective and agency, where Max is always having to be 'saved' by his mother, the autistic protagonists in *The Millennium Series* and *The Code* are radically more agential.

#### Autistic Retribution; Autistic Justice - Lisbeth Salander

*House Rules* and texts such as *Saving Max* prove to be largely feel-bad narratives of autism in which the reader comes to feel badly not only about injustices associated with autistic people, but about prejudices towards cognitive difference.

---

<sup>130</sup> Rebecca Mallett and Katherine Runswick-Cole, 'The "Urge to Know" Normal: Theorising How Impairment Labels Function', in *Theorising Normalcy and the Mundane: Precarious Positions*, ed. by Rebecca Mallett, Cassandra A. Ogden and Jenny Slater (Chester: University of Chester Press, 2016), pp.95-119 (p.110).

Compounded by a trial devoid of any meaningful agency for Jacob, autism is evoked in a series of false and prejudicial stories in which autism comes to be linked with deadly violence, stories that lack any of the assumed authority of legal 'truth'. However, this section considers how the 'feel-bad' experience of narrativised autism in *House Rules* transforms into the 'feel-badass' formulations depicted in the figure of the autistic hacker. Here, autism is central not only to self-justice, but also justice and retribution against some of the damaging biopolitical machinations affecting the way autistic people live; it is a reclamation of the false or silenced narratives that contribute to the figuration of the autistic shooter.

The media articles beginning this chapter portray the 'autistic hacker' as an emerging figure of cultural preoccupation. High profile legal cases such as those of McKinnon and Love detail the extent of individual hacking, and, like with the texts this chapter considers, highlight their dealings in court. Most interesting about these cases is public response, as these deviant actions by autistic hackers are viewed as having productive worth. I argue above that this is likely due to the fear of global cyber-attacks, and if America has come to be understood as the bastion of democracy, reports of Russian interference in the 2016 American election, and the reports of Cambridge Analytica working to influence both US elections and Brexit were represented as political crises.<sup>131</sup> Democracy itself is under cyber threat, something we see in the *Millennium* series where Lisbeth Salander and her criminal

---

<sup>131</sup> Andrew Buncombe, 'Senate investigation concludes Russia interfered in election to help Donald Trump - breaking with conclusion of House probe', *Independent*, 16 May 2018 <<https://www.independent.co.uk/news/world/americas/us-politics/trump-russia-probe-senate-investigation-us-election-house-probe-a8354786.html>> [accessed 3 July 2018]; Carole Cadwalladr, 'The great British Brexit robbery: how our democracy was hijacked', *Guardian*, 7 May 2017 <<https://www.theguardian.com/technology/2017/may/07/the-great-british-brexite-robbery-hijacked-democracy>> [accessed 3 July 2018].

father Zala come to represent a 'constitutional crisis'.<sup>132</sup> With such global threats, and indeed, mistrust of our own governments as reflected by 'LeicsMerc''s comment '[Gamble] may uncover all the governments lies!', the criminality of these hacks often loses focus in the urgency of their talent, talent 'typical' people in the novels can scarcely comprehend.

However, the idea of fetishization/fascination Murray considers remains fundamental to this emerging figure of the autistic hacker. They are at once celebrated and praised, and othered and ogled for their preternatural technological skills. In other words, and as is seen in the Australian TV show *The Code*, they are considered simultaneously useful and dangerous. Such is Salander's position. She is fluent in computer technology, able to solve crimes, steal billions, bring down corporations, and kill. Her hacking talents are also crucial in saving herself from injustice. Such ability is also present though to a lesser extent in *House Rules*, where Jacob's obsessive understanding of forensics and the law allows him to intervene successfully in his trial when Oliver is struggling. However, Salander is far more agential and is undoubtedly the badass hero of the series, and unlike Jacob she is not bound by 'house rules'. In this section, I look at how Salander is initially at the mercy of a pathologizing biopolitics before exploring how her neuro-difference becomes a way for her to fight back and to achieve justice and reclaim identity.

The first novel in the series is a standalone mystery that sees Salander help disgraced journalist Mikael Blomkvist solve an historic mystery for the powerful

---

<sup>132</sup> Stieg Larsson, *The Girl Who Kicked the Hornets' Nest*, trans. by Reg Keeland, (London: MacLehose Press, 2015), p.291.

Vanger family through her extraordinary hacking abilities. The final two novels of the trilogy explore Salander's subsequent manhunt. She is the prime suspect in the murder of a young couple who were working with Blomkvist, as well as her rapist and legal guardian Nils Bjurman. It is understandable that Salander quickly becomes a suspect because her fingerprints are found on the murder weapon. The murdered couple and Blomkvist were working to expose an illegal sex-trade threatening to unearth the truth about criminal mastermind and Russian defector Zalachenko. Initially unaware that Zala is her father, Salander hacks Blomkvist's computer and reads his research into Zala and the illegal trade, subsequently beginning her own investigation. Zala was given citizenship in Sweden by the state run 'Section'. Though he beat Salander's mother the state decided he was too much of an intelligence asset so his criminal activities became state-sanctioned secrets (by rogue members of the Section) in the hope that his knowledge would pay off. When Salander was twelve, she threw a Molotov cocktail at Zala and was institutionalised, and thus controlled by the state for the following years of her life. Upon release she was placed under the strict control of a guardian. Under guardianship, 'the client is relieved of the authority to handle his or her own money or to make decisions [...] the guardian [takes] over all of the client's legal powers'; in other words, the Section's secrets were safeguarded by her 'safeguarding'.<sup>133</sup>

The signification of this strict form of biopolitical legal control, even more than the material fingerprint evidence, is what leads Salander into being the prime suspect. Throughout the trilogy reference to Salander's case history is prevalent. In

---

<sup>133</sup> Stieg Larsson, *The Girl with the Dragon Tattoo*, trans. by Reg Keeland, (London: MacLehose Press, 2008) p.202.

the first novel we learn ‘her casebook was filled with terms such as *introverted, socially inhibited, lacking in empathy, [...] psychopathic and asocial behaviour*’, and after Bjurman forces Salander to perform oral sex he tells her there is little point going to the authorities because ‘there are documents stating you’re non compos mentis’.<sup>134</sup> Likewise, the second book sees the police explain she ‘was declared incompetent by the district court, and [is...] documented as having violent tendencies’.<sup>135</sup> Moreover, when the police interview Salander’s loyal boss Armansky the inspector explains she has a ‘record’ stating that she is ‘deeply disturbed’, to which Armansky replies ‘files are one thing. People are something else’.<sup>136</sup> These mark the crux of Salander’s biopolitical position. She is held to ransom, not as a person, but as a fabricated neurological history created by the Section’s Dr Teleborian when she was twelve.

Biopolitical power bears down on Salander through ‘medical’ incarceration and psychiatric diagnoses. She is both monitored and legally bound to the state under guardianship. She is understood through a falsification of medical records, and her very being is a threat to ‘national security’.<sup>137</sup> The final novel is an attempt to problematize these controls, culminating in a courtroom scene in which the facts are finally laid bare. As in *House Rules*, the prosecution use Salander’s diagnoses to attempt to discredit her, arguing ‘it is also my duty to remind the court that Lisbeth Salander has been diagnosed as a paranoid schizophrenic’.<sup>138</sup> This is countered by

---

<sup>134</sup> Ibid. p.143; p.200.

<sup>135</sup> Stieg Larsson, *The Girl who Played with Fire*, trans. by Reg Keeland, (London: MacLehose Press, 2009), p.222.

<sup>136</sup> Ibid. p.225

<sup>137</sup> Larsson, *Hornets’ Nest*, p.127.

<sup>138</sup> Ibid. p.597.

Salander's lawyer who plainly explains that 'from the time she was a child she tried [...] to talk to police and social workers [...] The result in every instance was that she was punished because government civil servants had decided that Zalachenko was more important than she was'.<sup>139</sup> This reflects a different autistic narrative to *House Rules*. Punished by a biopolitical system that ostensibly protects, Salander protects herself.

The courtroom drama occurs following a long media campaign against Salander depicted through newspaper headlines that puncture the final two books. Uncannily echoing aspects of the media articles beginning this chapter, 'sometimes she was described as psychotic and sometimes schizophrenic or paranoid. All papers subscribed to the view that she was mentally handicapped'.<sup>140</sup> The difference between the real articles and the fictional ones is that Salander's do not mention autism. In fact, in many ways autism is an object which works at odds with *House Rules* – here it is not a guilty diagnosis, but a logical explanation for atypical behaviour and a useful set of skills. This marks the dual role of autism today – at once dangerous (shooter) and useful (asocial hacker). Above I discuss Murray's concept of 'witnessing' autism. However, if *House Rules* trades on the colloquial and diagnostic witnessing of autism, in this series it is less 'autism' that is publicly witnessed and instead a more psychological profile akin to Foucault's perverse implantation. Salander, whose coded autism is revered by the reader, is thought to be a prostitute,

---

<sup>139</sup> Ibid. p.640.

<sup>140</sup> Ibid. p.351.

‘retarded’, a ‘PSYCHOPATH’, and a member of a ‘LESBIAN SATANIST CULT’ by the public in the novel.<sup>141</sup>

Salander’s autistic expressions are rendered benign relative to her perverse appearance. It is not her ‘lack of emotional involvement’ that most upsets Armansky, but her image.<sup>142</sup> At work she was known as ‘the girl with two brain cells’ who acts like a ‘stray cat’.<sup>143</sup> We are told that ‘she was simply not very good at establishing contact with other people’, but that this ‘was not a matter of shyness. For her, a conversation had a straightforward function’.<sup>144</sup> Moreover, her former guardian Palmgren explains ‘she has an extremely hard time relating to other people. I thought she had Asperger’s syndrome or something like that’.<sup>145</sup> Here autism is used to explain her asociality and extraordinary hacking abilities, rather than to compound deviance. At the end of the first novel, Blomkvist repeats this thinking, ‘Asperger’s syndrome [...] Or something like that. A talent for seeing patterns and understanding abstract reasoning where other people perceive only white noise’.<sup>146</sup> While Salander realises that her lack of imagination ‘was evidence enough that there was something wrong with her brain’, the way in which ‘autism’ diffuses the stains of deviance and perversity caused, not by neuro but by psychological lenses, is notably different to how it is used to compound deviance and violent behaviour in Jacob.<sup>147</sup> In the final novel, Dr Jonasson, the doctor who successfully removes a bullet from Salander’s

---

<sup>141</sup> Larsson, *Dragon Tattoo*, p.143; *Played with Fire*, p.311; p.334.

<sup>142</sup> Larsson, *Dragon Tattoo*, p.33. It is an interesting comparison here that the countercultural neuroscientists who created the mind-altering drug in Naam’s *Nexus* are described in similar aesthetic terms to Salander.

<sup>143</sup> *Ibid.* p.35.

<sup>144</sup> *Ibid.* p.210; *Played with Fire*, p.26.

<sup>145</sup> *Ibid.* p.502.

<sup>146</sup> Larsson, *Dragon Tattoo*, p.454.

<sup>147</sup> Larsson, *Hornets’ Nest*, p.710.



brain, becomes an ally of Salander's and the good double of evil Teleborian. The two doctors have a heated discussion in which Jonasson refuses to grant Teleborian access to Salander. Teleborian tries to pull rank, explaining his intimate history with Salander's (fabricated) 'pathology', 'clinical condition' and 'deterioration'.<sup>148</sup> He claims Salander has a 'serious mental disorder' but 'would hesitate to confine [himself] to an exact diagnosis'.<sup>149</sup> His meaningless psychobabble is countered by a cool Jonasson, who asks if he has 'ever considered a significantly simpler diagnosis [...] For example Asperger's syndrome'.<sup>150</sup> Of course, Teleborian is quite right that Asperger's does not cause people to throw Molotov cocktails; however, the way in which autism in the series re-writes deviant readings of autism as in *House Rules* is refreshing: Salander is not deviant, she is autistic. What is more, she is an autistic hero, she is for many, as Sheng-Mei Ma writes, 'my Aspergirl'.<sup>151</sup>

Salander's autism is more than just witnessed, it is written into her character. In each of the novels her thought processes are intermittently described as a series of 'clicks'. Ma suggests that in one particular instance such a 'click' likens her to a camera, doubtless a comment on her photographic memory.<sup>152</sup> I agree, but these 'clicks' do more than this and symbolise her brain's computational and hacking alignment. Throughout the series '*click*' occurs in moments of revelation, confusion, or pressure.<sup>153</sup> 'Click' is the verb of attack and defence for Salander. It represents the

---

<sup>148</sup> Ibid. p.226-7

<sup>149</sup> Ibid. p.227.

<sup>150</sup> Ibid.

<sup>151</sup> Sheng-mei Ma, 'My Aspergirl: Stieg Larsson's Millennium Trilogy and Visualisations', *Journal of American Culture*, 37.1 (2014), 52-63.

<sup>152</sup> Ibid. p.56.

<sup>153</sup> In *Dragon Tattoo* 'click' is often associated with Salander's cognitive processes and becomes a sign of her cognitive difference. For instance, whilst reading old press cuttings her mind goes '*Click. Click. Click*' (p.388). Later, her brain works 'at top speed' whilst trying to piece fragments of memory

mechanics of her brain in high-pressure situations, but also the literal act of ‘clicking’ when she hacks. For instance, ‘she clicked *copy*, wrote the name ArmanskyMiltSec and clicked OK. The computer instantly began copying Armansky’s hard drive’; she ‘clicked on the bubble and wrote *Wasp*’, which allows her entry to the Hacker’s Republic.<sup>154</sup> She clicked on image after image of child pornography on Teleborian’s computer – allowing her to turn the tables on his history of implanting perversions. Finally, she finds a crucial clue ‘clicking through one after another’ of Teleborian’s emails, allowing Blomkvist and her friends to identify a member of the Section.

As well as brain process, self-defence, and hacking, clicking also allows Salander a form of sociality. Unable to cope with seeing Blomkvist in reality after he broke her heart, but ‘curious about what he was up to’, she ‘double clicked and opened a copy of Blomkvist’s hard drive’.<sup>155</sup> Later, she and Blomkvist talk through his hard drive, double-clicking on the document ‘[To Sally]’ and conversing through it.<sup>156</sup> More poignantly, it is through a click on the handheld computer Jonasson smuggles into her hospital room that she is finally able to tell *her* story. In the first novel Salander’s life is arranged for her; we read that she ‘was somewhat bewildered by the exchange that had gone back and forth over her head all day [...] no-one had asked for her opinion. She [...] nodded once’.<sup>157</sup> In the final novel, this single, passive,

---

together, ‘Mamma – *click* – sister – *click* – Mimmi – *click* – Holger Palmgren. Evil Fingers. And Armansky. The job. Harriet Vanger. *Click*’ (p.501). This is repeated in *Played with Fire* when she is being attacked by Zala. ‘She took two steps towards the undergrowth when out of the corner of her eye – *click* – she saw Zalachenko raise his arm’ (550). Moreover, emerging from the ground after being shot and buried, ‘She swayed like a drunk. [...] *Click*. Wood. *Click*. Fire’ (p.558). In *Hornet’s Nest*, again whilst being attacked the click motif return, ‘Her brain was working at high speed. *Click, click, click*. She still held the crowbar in her hand but she knew that it was a feeble weapon against a man who could not feel pain’ (pp.704-5).

<sup>154</sup> Larsson, *Played with Fire*, p.94; Larsson, *Hornets’ Nest*, p.311.

<sup>155</sup> Larsson, *Played with Fire*, pp.149-50.

<sup>156</sup> *Ibid.* pp.364-5.

<sup>157</sup> Larsson, *Dragon Tattoo*, p.145.

nod is replaced by an agential click. 'She clicked on New Document, took out the stylus and began to tap on the letters on the digital keypad. *My name is Lisbeth Salander [...]*'.<sup>158</sup> This begins a long document recounting her life, a document which is submitted as evidence in the murder trial.

Salander's subcultural status and subjectivity is in no small part tied to her hacking abilities. A member of 'Hacker Republic', a group of elite hackers initiated only through existing member introduction, she and her other online citizens are 'adversaries' of the 'idiots' who spread computer viruses, working to clean the net to ensure they remain able to hack.<sup>159</sup> However, they are powerful too, bringing justice in the form of liquidation to a Californian CEO who stole a patent from an employee, and offering to help Salander 'shut down the Swedish government'.<sup>160</sup> This is her subcultural milieu. As established with her discussions with Blomkvist, she can 'blithely reveal her most intimate secrets' to fellow citizens, which she is unable to do 'with people of flesh and blood'.<sup>161</sup> Writing about autism and the internet, Victoria Henderson explains 'the Internet makes possible the reconfigurations of spatialities by nurturing a sense of proximity among a geographically dispersed and socially alienated population'.<sup>162</sup> In other words, that citizens of the Republic do not 'feel any kind of loyalty to any state' (whose biopolitical machinations often attack rather than protect cognitive difference) is crucial to their emotional closeness.<sup>163</sup> Traditional

---

<sup>158</sup> Larsson, *Hornet's Nest*, p.347. My italics to portray the novel's font change signifying Salander's writing.

<sup>159</sup> Ibid. p.313.

<sup>160</sup> Ibid.

<sup>161</sup> Ibid. p.314.

<sup>162</sup> Victoria Henderson, and others, 'Hacking the master code: cyborg stories and the boundaries of autism'.

<sup>163</sup> Larsson, *Hornets' Nest*, p.313.

boundaries are removed and bounds of computer fluency and loyalty are introduced mirroring the subcultural neuroscientists in *Nexus*.

The series is full of ‘productive’ hacking, but I want to look at three instances in particular; how Salander saves herself, how she saves Blomkvist, how she saves Erika. Blomkvist makes it clear that Salander is the only person who can reveal the truth of the state conspiracy. He knows that ‘Salander’s being isolated [in hospital] presented one other acute problem. She was a computer expert, also a hacker [and...] he had great need for her skills in that field’.<sup>164</sup> This is made even more explicit when he is convincing Jonasson to smuggle Salander’s handheld computer into hospital. Blomkvist tells him that ‘this is the most important weapon Lisbeth has in her arsenal – she has to have it. [...] Lisbeth is the only one who knows how to get at the evidence’.<sup>165</sup> Here it is only through hacking that justice can be brought, entirely at odds with the typical workings of disciplinary biopolitics, where the individual is monitored by machinations of power, not monitoring them. This is the position of the figure of the ‘autistic hacker’ today. They, like Salander, can expose corruption. Indeed, with the help of her fellow citizens, the truth is exposed in court and Salander is exonerated.

That Salander’s hacking exonerates herself and exposes state corruption is remarkable, but her work as online Nemesis also saves Blomkvist and Erika. When we first meet Blomkvist he has just been to prison for printing libellous claims about tycoon Hans-Erik Wennerström. The rest of the novel considers the Vanger mystery,

---

<sup>164</sup> Ibid. p.235.

<sup>165</sup> Ibid. p.278.

which Blomkvist undertakes because Henrik Vanger offers him information that would substantiate his rubbished claims against Wennerström. Upon solving the mystery (with Salander's help) he realises that this promised information is useless. However, Salander hacks Wennerström's computer and shares the information with Blomkvist. This act fully vindicates Blomkvist and his magazine *Millennium* becomes a major player in Swedish journalism. Similarly, in Erika's subplot in the final novel she is now working as editor at a national paper (helped, of course, by *Millennium's* reputation after breaking the Wennerström scandal), but is the victim of gross online harassment, theft, and home-invasion by an unknown member of her staff. Salander's offer to help her reflects an aspect of her character people are unable to see in the flesh. Salander dislikes Erika because of her romantic links to Blomkvist, but this offer of help from her hospital bed is Salander's online olive branch. She reduces the suspect list to eighteen members of staff, before giving the task to fellow hacker Plague to finish. Plague sums this gesture up by writing, '<You're beginning to exhibit signs of a social conscience.>'<sup>166</sup> Indeed, it is Erika who best understands the fantastic scope of Salander's role of the autistic hacker describing her as 'an oddly resourceful young woman'.<sup>167</sup> Her resourcefulness is certainly 'odd', and whilst Erika still does not grasp that it is not 'despite', but 'necessarily because' of her physical social isolation that allows her the freedom to research, she does recognise her role as hacking nemesis.

Sonya Freeman Loftis's critique that the series uses autistic stereotypes, such as Salander's lack of emotional investment, asociality, and its repeated alignment of

---

<sup>166</sup> Ibid. p.477.

<sup>167</sup> Ibid. p.489.

her brain as being a computer, which establish Salander to be a puzzle to be solved, is a valid reading.<sup>168</sup> Yet, by looking at her as an autistic hacker, and in comparing the fact that 'autism' is not constructed as explicitly 'guilty' as in *House Rules*, her narrative does much to celebrate implantations of difference. However, Salander is also dangerous, she, unlike Jacob, does violently attack people though only because of the precarious biopolitical situation in which she exists. Salander is justly violent in the same way that she justly hacks. She abides by her own set of ethics and morals that prove far superior to many of those around her. Indeed, where enhancement voids Eddie of ethics, Salander's atypical logic provides her with a neutral sense of justice. She is a hero not for celebrity or recognition but to right personal wrongs. Indeed, the fact that she can detect the secrets but has either no will or public forum to discuss them makes Blomkvist a natural partner. She is the judicial brain and he is the public mouthpiece. This narrative combination which sees the retributive autistic hacker and savvy journalist tackle injustice is employed again in the Australian television series *The Code*.

#### Autistic Retribution; Autistic Justice: *The Code*

This section focusses on season one of *The Code*. It is divided between remote Lindara in New South Wales and Canberra, the seat of Australian government. In Lindara, two aboriginal teens Clarence and Sheyna are involved in a collision. Clarence survives and returns to his temporary carer and teacher Alex, covered in blood and incoherent. The next day Alex and the local police discover Sheyna's body

---

<sup>168</sup> Freeman Loftis, 2015, p.142. In regards to Salander's computational characterisation note the mathematical and technological names given to the parts comprising *Played with Fire* and *Hornets' Nest*. In *Played with Fire* there is 'Irregular Equations', 'Absurd Equations', and 'Terminator Mode'. In *Hornets' Nest* there is 'Hacker Republic', 'Disk Crash' and 'Rebooting System'.

as well as a corrupted video file on Clarence's phone. In Canberra, Sophie, communications director for the government, gives her former journalist boyfriend Ned an official leak containing a reference to Clarence's collision. Ned pursues it, getting in contact with Alex who eventually sends him the video file, which his autistic brother Jesse, a computer hacker released on licence, is able to recover. Jesse investigates further. Noticing a number plate he hacks the biotech company Physanto and downloads encrypted data. He triggers a warning and both Jesse's computer and Ned's journalism office are counterattacked with malware. The series then becomes a fast-paced techno-thriller in which Jesse is kidnapped, escapes, further hacks, and falls in love. At the end, Jesse, Ned, and Jesse's new girlfriend Hani hack Deputy Prime Minister Ian Bradley's computer and steal the evidence he is trying to delete pertaining to his involvement in Physanto's illegal dealing in enriched uranium, the substance being transported in the truck that collided with Clarence and Sheyna. In this section I show how the materiality of Jesse's implanted autism is continually referenced throughout the series before analysing how his being institutionally framed to appear dangerous is countered by his unique skills as an autistic hacker, which not only bring justice and retribution within the series, but which problematise the plastic narrative I theorise in chapter one.

The viewer first meets Jesse being driven to work by his brother, agitated because he is going to be late because Ned must cover a government press conference. As if talking to a child, Ned repeatedly tells Jesse to 'stay in the car'.<sup>169</sup> Jesse becomes increasingly restless and walks with a parcel of pills towards the

---

<sup>169</sup> 'Episode 1', *The Code*, series 1, Playmaker Media and the Australian Broadcasting Corporation, 21 September 2014. Netflix <<https://www.netflix.com/watch/80003075>> [accessed 4 November 2019].

government building. Inside, Ned is told that Jesse has been stopped and is surrounded by police (fig 29). Jesse is kneeling in the corner with his head down and arms raised in protection, whilst police are reaching for weapons as they shout at a clearly distressed and confused Jesse to put his hands on his head. This is not a protest kneel, nor a kneel of reverence, but a kneel of fearful submission; Jesse's frame is diminutive and helpless. The shot changes and Jesse's upper body now fills the screen. He is shouting and crying and remains defencelessly bent forward (fig. 30). The perspective changes, this time to an aerial CCTV shot in which the potential danger Jesse posed has subsided, police stand-down and Ned begins to pick up the pills spilled after ripping open the parcel to prove it is not a weapon (fig. 31). This opening sequence sets the tone regarding the biopolitical and disciplinary power surrounding and affecting brain and cognitive difference in the series. Jesse is holding his medication surrounded by police in the heart of government whilst being watched and monitored by CCTV. This kind of surveillance is supposed to work invisibly and individually because surveillance is internalised. However, here we are all made to confront our quotidian role of normative voyeur in an uncomfortable and unsubtle manner: this perspective shows us not to be just witnesses as Murray



describes, but the guard in the panopticon, influencing and forming subjectivities of those with cognitive difference through internalisation of the normalising gaze.



*Figure 31 – CCTV shot of Jesse surrounded by police.*

If the above scene renders Jesse’s autism visually and aurally, it subsequently becomes an object of discussion for his brother Ned. While in *House Rules* the court attempts to debate the legitimacy of autism’s neuro-materiality, and hence open the door to phantom readings of psychological otherness or deviance, Ned discusses Jesse’s autism in either medical or metaphorically material terms. During the exchange when Sophie leaks the documents, Ned tells her as way of explanation for Jesse’s behaviour outside the government building, ‘you know he has a condition’, to which she replies, ‘selfish, manipulative, pain in the arse-itis is a condition now?’



*Figure 29 – Jesse kneeling surrounded by police (Season 1, ‘Episode 1’).*



*Figure 30 – Jesse’s screaming face filling the frame.*

echoing the flippancy of the prosecutor's remarks in *House Rules*.<sup>170</sup> Later, Ned tells Hani a fellow hacker and subsequently Jesse's girlfriend that Jesse 'isn't put together like other people'.<sup>171</sup> Jesse also discusses himself in neuro-material terms. A scene in which Hani visits Jesse at home sees a continuation of the visual signifiers of Jesse's cognitive difference as it opens with an image of Jesse's pillbox (fig. 32). While showing Hani the garden he says:

I'm not that into plants, but the idea that you can hack off what is effectively one of its limbs and, on a cellular level, messages crank into action and a whole new plant grows a perfect biological replication of the original. That is pretty kick arse. I wish sometimes I could cut off my pinky and see if it would grow a new me. I don't tell many people that. It makes me sound like a psycho. Which I'm not, by the way. But if I did grow a new me, I wonder whether there'd be the same kink in the wiring. I don't know if you've noticed, I'm a little different.<sup>172</sup>



Figure 32 – A pillbox in Jesse's apartment ('Episode 1').

Here Jesse is speaking in strictly bio-material terms. This idea of self-replication, however, should not be read as indicative of him wanting to correct atypicality. Jesse's tone is entirely speculative and curious evidenced through the modals 'would' and 'could'. Indeed, if it were possible, he does not *hope* to grow a typical brain, but

---

<sup>170</sup> 'Episode 1', *The Code*.

<sup>171</sup> 'Episode 4', *The Code*, 12 October 2014. Netflix <<https://www.netflix.com/watch/80003078>> [accessed 4 November 2019].

<sup>172</sup> 'Episode 1', *The Code*.

only wonders ‘whether there’d be the same kink in the wiring’, he is, after all, ‘a little different’.

Having established trust Jesse tells her about the documents he found hacking Physanto. He says: ‘I found some stuff last night that, well, I’ve not encountered it before so I have no way of describing it’, Hani replies, ‘so show me’.<sup>173</sup> This exchange perfectly encapsulates many of the narratives of ‘autism’. More than anything this shows how mutable and categorically diverse ‘autism’ is as a categorisation and ontological implantation. Jesse’s characterisation is atypical; he responds, acts, and thinks differently to normal expectation as evidenced in Figure 29; yet Jesse’s metaphorical-science makes much more sense than the diagnostic label ‘autism’ especially when you place in in the context of this chapter as a whole. Jesse is utterly unlike Salander, who is utterly unlike Jacob, who is unlike the ‘autistic shooters’ reported in the press, who, as Gladwell describes are unlike each other, and yet each of these are linked by ‘autism’ – indicative of the oft-repeated phrase within autistic discourse: *if you’ve met one person with autism, you’ve met one person with autism*. Berend Verhoeff titles an article ‘What is this thing called autism?’, and Runswick-Cole titles a chapter ‘Understanding this *thing* called autism’ in which Runswick-Cole argues that this ‘thing’ is a ‘powerful story’, indeed the repeated use of ‘thing’ in such research is extremely apt. In everyday speech we use ‘thing’ as a filler if we have forgotten the correct word or lack a specific word to use. Linguistically, ‘autism’ works in the same way; what ‘thing’ is to an unknown object on a table, ‘autism’ is to cognitive differences in society and culture – it is the

---

<sup>173</sup> Ibid.

medicalised narrativisation of unmeasurable and indefinable perceptions of many types of cognitive difference. Thus, when Jesse says of the stolen documents, 'I have no way of describing it' and Hani replies 'so show me', we can read it as the medical unknowability of the thing 'autism' as well as the need to try to comprehend it through different more imaginative forms, to be *shown* the thing. Hence Hani's brilliant play on the words autistic/artistic when she shows Ned just how talented Jesse is with computer technology; 'do you get how good he is, at what he does? [...] He's an artist [...] Anyway, what he's done here, your wonderfully artistic brother'.<sup>174</sup> Yet, though *The Code* remains unclear as to what this thing, this depiction of cognitive difference, is, Jesse's autistic expressions are centred on exposing the corruption.

*The Code* depicts a society in which criminality lies at the heart of contemporary biopolitics, with the Australian deputy prime minister covering up illegal associations between a giant biotech firm and the government. To this extent, links to the endemic criminality of *Limitless* and the illegal collusion between medical/social services and government in the *Millennium* series are clear to see. However, Jesse's hacking abilities are ultimately employed to contain the kind of criminality that drives Eddie's narrative in *Limitless*. There is a distinctive, frenetic, and sometimes manic quality to Jesse's hacking scenes that allows me to argue that, where Salander proves to be online nemesis to her personal adversaries, Jesse is nemesis not only to the specific villains in the series, but also to the empty ideology of the plastic narrative itself.

---

<sup>174</sup> 'Episode 2', *The Code*, 28 September 2014. Netflix <<https://www.netflix.com/watch/80003076>> [accessed 4 November 2019].

The first time we see Jesse hack is when he steals the encrypted files from Physanto. Introducing this scene is a frequently used motif of a time-lapse shot of sky, in which a fast-edit of moving clouds signify an increase in speed. What follows is Jesse, clicking and tapping his finger absent-mindedly, whilst trying to hack the company without any real directed intention. At first, Jesse's face is notably indifferent and his finger tapping conveys an aimless repetitive quality (fig. 33, 34) as composite images from the computer invade the shot.<sup>175</sup>



*Figure 33* – Jesse attempting to hack into Physanto ('Episode 1').



*Figure 34* – Jesse's finger listlessly tapping the keyboard ('Episode 1').

This time-lapse shot is used throughout the series, notably in the instances when Jesse hacks. Hacking thus represents a dynamic and temporal agency for him, whereby he moves through time, beginning, and throughout the series continuing, to uncover a heinous official cover-up of the murder of a young girl. By the safety of his computer, time moves at a faster pace, and if this initial hack begins as a listless fishing expedition, the narrative pace rapidly increases as shortly after the scene and having successfully hacked the biotech firm's server, Jesse is kidnapped for stealing the files. He is held and psychologically tortured in a secure unit by a man who tells

---

<sup>175</sup> 'Episode 1', *The Code*.

him, in stark contrast to the temporal dynamism hacking offers that ‘time is no object here’.<sup>176</sup>

Yet, if time is no object while Jesse is tortured, his dynamic fast-paced agency returns once he resumes hacking. His next major hack occurs in an internet café service station. Here, stroking his neck, Jesse has a nervous manic edge looking down at the computer with an almost fervent, addict like quality (fig. 35). He sits at the computer promising himself he will ‘just be five minutes’ online.<sup>177</sup> The shot then slowly zooms in on his face, with the window outside showing a time-lapse fast-edit of pedestrians walking by, again signifying an intensity of focus and loss of time (fig. 36), and as with Figure 33, Jesse’s hacking activity compositely fills the frame (fig. 37). Noteworthy here are the similarities to Eddie’s plastic narrative in *Limitless*. In the film, NZT allows Eddie to write his book, a scene in which Eddie rapidly types on his laptop as letters fall and form around him signifying both increased speed and productivity (fig. 38), in much the same way as Jesse’s hacks. The visual differences are clear. Eddie is bathed in the hyperreal light signifying both his enhancement and ethical void, whereas Jesse is in the greyscale that comes to represent the instances in the film when Eddie is unenhanced. Where Eddie is using his (enhanced) ability for personal gain, Jesse is using his (autistic) ability for justice, both politically (‘a threat to democracy’ fig. 37), and personally (he changes the images of most wanted criminals to the man who tortured him). What is more, like Eddie’s blacked out time,

---

<sup>176</sup> ‘Episode 2, *The Code*.

<sup>177</sup> ‘Episode 3’, *The Code*, 5 October 2014. Netflix <<https://www.netflix.com/watch/80003077>> [accessed 4 November 2019].

the five minutes Jesse expected to spend in the service station become two hours without realisation.



Figure 35 – Jesse looking desperately at a computer in a service station ('Episode 3').

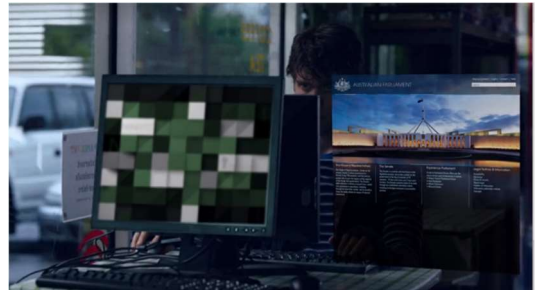


Figure 36 – Jesse focused on hacking, with the background street in a fast edit.



Figure 37 – Jesse re-writing a website through hacking.



Figure 38 – Enhanced Eddie writing his novel on his laptop (*Limitless*).

Having left the service station, Hani asks Jesse if he should decrypt the files considering their danger. While red letters and code superimpose upon his face Jesse says, 'what they have done to me, those men in the white van, is force something into my brain which makes no sense to me. I have no way of filing what happened because I don't understand why it happened. And so until I know why, I will have the splinter in my brain that I can't stop touching'.<sup>178</sup> Again, Jesse's material understanding of his brain and cognitive difference is evident. Unable to make sense

<sup>178</sup> Ibid.

of what has happened because his brain cannot comprehend it, he immediately begins hacking to try to find comprehension in a way that makes sense to him, by decrypting the files and solving the more tangible mystery.

Jesse later spends a night in a motel trying to crack the code whilst waiting for Ned. Here, the fervent look of Figure 35 becomes a fully realised visualisation of addictive mania. The time-lapse recurs; however, where in the initial hacking scene (fig. 33) the time-lapse sky introduces the scene, and where in the service station the external pedestrians are time-lapsed while Jesse remains seated (fig.36), here, in the motel it is an elliptical shot and the entirety of the scene occurs in rapid pace.<sup>179</sup>



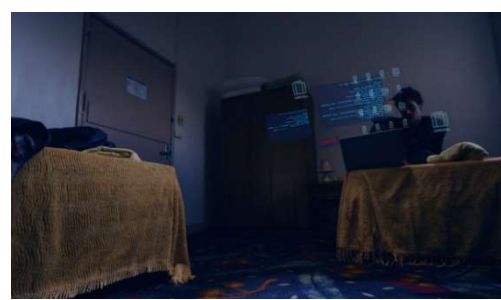
*Figure 39* – Eddie hacking in a motel room in darkness ('Episode 4').



*Figure 40* – Eddie looking exasperated in the motel room in daylight.



*Figure 41* – Red screen projecting from the laptop, symbolising hacking.



*Figure 42* – The motel room returned to darkness, with Jesse still hacking.

---

<sup>179</sup> 'Episode 4', *The Code*.





Figure 43 - Jesse's face fervent and erratic illuminated only by morning light.

As seen in Figures 39-42, the room goes from dark, to light, and back to dark as Jesse moves frantically around with his laptop, which visually emits his hacking as composite images. There is a growing sense of urgency here depicted through both the rapid pace time-lapse as well as Jesse's exasperation (fig. 40). In *Limitless*, the tunnelling effect visually propels the viewer into taking Eddie's plastic narrative with him, whereas in the motel with Jesse the camera remains static and only Jesse and the light move. There is no sense of complicity; it is down to Jesse alone to bring justice through his unique abilities because the viewer is prefigured as complicit in the introductory disciplinary CCTV perspective. Indeed, I argue in chapter one that as Eddie's appearance improves his ethics decrease, made most explicit during the Dorian Gray inversion during the apartment stabbing. However, *The Code* sees Jesse and his narrative fully degrade in this motel scene. Jesse eventually falls asleep unsuccessful in his endeavour. He wakes up and realises that the time stamps on photographs are the key to cracking the code and to bringing justice against the pharmaceutical company. Jesse's face is obscured by text and is only half illuminated by morning light (fig. 43), compare this to Eddie's hyperreal face when he wakes up in a hotel having been rescued by his girlfriend Lindy. That Eddie wakes enhanced,

beautiful, and ethically corrupt, whilst Jesse wakes manic, bedraggled, and fervent for truth, highlights an important difference between ideals of neural identity and subjectivity today. Eddie is so because *Limitless* trades on a neuromolecular narrative of late capitalism: consume, refigure, surpass. Jesse is so because his vigilantism reflects an illegal opposition to the neoliberalism exemplified by the biotech company he is challenging, and thus his hacking is *necessarily* in the shadows. His hacking actions mirror the position of his cognitive difference here: marginal but productive. Read this way, Jesse's increasingly fast-paced and desperate hacking scenes come to act as an inverse of Eddie's plastic narrative, mirroring its pace and mutability but towards an altogether more ethical and reparative narrative, one that comes to an expected narrative close. Indeed, it is because Jesse has apparent limitations which he confronts throughout his life that the narrative can find its own limit, unlike the never-end of the plastic narrative in *Limitless*.

This ending is an online faceoff between Jesse, aided by Hani, Ned, and Sophie, and the corrupt deputy prime minister Bradley and workers at Physanto.<sup>180</sup> Jesse hacks into Bradley's parliamentary computer and has Ned's journalism office record everything through his webcam. Jesse then establishes a link from Lindara, where the dead children's parents are waiting to face Bradley via webcam. It is a tense denouement, in which obscured faces, rapidly typing fingers, and cyber networks dominate the screen. First, Bradley begins to delete the Physanto files from his staff computer. It is a desperate act in which files are individually dragged into the laptop's recycle bin in rapid succession (fig. 44). Note how this mirrors the initial

---

<sup>180</sup> 'Episode 6', *The Code*, 26 October 2014. Netflix <<https://www.netflix.com/watch/80003080>> [accessed 4 November 2019].

instance in which Jesse hacked and stole the Physanto documents at the beginning of the series (fig. 34). Jesse's listless fishing expedition with monotonous clicking becomes a frantic clicking and dragging of a disgraced politician trying to hide evidence. Indeed, Jesse is now online nemesis, no longer staring listlessly at the

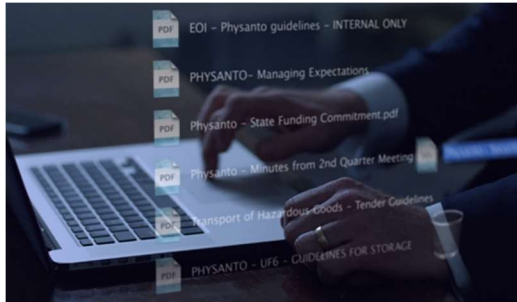


Figure 44 – Bradley desperately deleting evidence ('Episode 6').



Figure 45 – Jesse focused and determined whilst proving Bradley's guilt through hacking.

screen (fig 33), but fervent with the purpose of bringing justice (fig. 45). As seen, the pace of Jesse's narrative increases throughout the series as his desperation to crack the code deepens, much as Eddie's plastic narrative in *Limitless* continually increases and expands. However, this final scene proves Jesse to be the full stop lacking in plastic neoliberal narratives of greed, expansion, and enhancement. That Jesse attacks a biotech firm – a bastion of late capitalist biopolitics – is crucial to understanding the significance of *The Code's* cultural work in translating the effects of the neural implantation, as well as frustrating the dominant (though, as chapter one argues, waning in the wake of populist challenges) neoliberal understanding of plastic potential and idealistic enhancement.

\*

Through a sustained media analysis, this chapter has argued that the representation of autism today is problematically encapsulated in the figures of the autistic shooter

and the autistic hacker. These two figures represent the dual poles of autistic implantations in contemporary society and culture: antisocial deviance, and asocial brilliance. Standing synecdochally for a range of cultural representations, these two figures are cultural constructions resulting from the kind of logic McGuire derides as being the normative violence against autism. Though I celebrate the increase in more nuanced narratives of autistic subjectivity, this chapter maintains that these two polar figures stand in a discursive foreground removed from a biopolitical reality that sees autistic people systematically devalued to the extent that their sometimes indefinite incarceration under section or lower life expectancy is increasingly normalised. This chapter challenged this schism through readings of these two figures in contemporary crime narratives. My analysis of the shooter figure was facilitated through a cultural history of the conventions and cultural meaning of the courtroom drama. I was able to show how biopolitical and phantom associations of autism as a floating category came to eradicate Jacob's unique subjective history and argued that this 'feel bad' courtroom drama ultimately places the biopolitics and normative assumptions society has of autism on the stand.

My reading of the hacker figure turned the 'feel bad' narrative of the shooter into the 'feel badass' reading of vital autistic subjectivity and agency. Through Salander, autistic implantation is rendered a positive ontological shift, whereby her damaging psychological case history is made meaningless in relation to the material understanding of autistic difference, difference that enables her alone to bring justice. My reading of *The Code* furthers the notion that autistic subjectivity can enable justice otherwise ignored. I compared the aesthetics of Jesse and *Limitless's* narrative to argue that autism is not only rendered accepted as different, but more

importantly, an ethical counter to the kinds of ideologies that underpin neoliberal enhancement, a task the next chapter's close readings of dementia detective fiction continues.

## Chapter Three: Sleuthing and Suspecting the Dementia Subject<sup>1</sup>

'All Alzheimer's disease is dementia, but not all dementia is Alzheimer's disease' begins Anne M. Lipton and Cindy D. Marshall's *The Common Sense Guide to Dementia for Clinicians and Caregivers*.<sup>2</sup> That this reads as a logical puzzle highlights the slipperiness of this thing called 'dementia'. Dementia itself is not a disease, but an umbrella term acting as a clinical and cultural shorthand for a range of cognitive impairments due to specific brain diseases.<sup>3</sup> Alzheimer's is the most common disease under this umbrella term and amounts for approximately 60% of dementia cases.<sup>4</sup> Hannah Zeilig sums up these definitional problems succinctly:

Dementia and AD [Alzheimer's disease] cannot easily be defined because both have been subject to subtly changing psychiatric, biomedical, and social/cultural stories. This is not to deny that they both represent biological mental illnesses. However, on a conceptual level, the terms are open to interpretation and subject to historical and cultural mores.<sup>5</sup>

Indeed, the role that biotechnology and molecular medicine has had in changing the medical and cultural perception of dementia diseases cannot be overstated. To this extent, Lucy Burke writes that 'the way we talk and think about dementia today is inseparable from the assimilation of a disease model that is produced [...] across a range of sub-disciplines and emergent medical technologies: neurology, genetics,

---

<sup>1</sup> Parts of this chapter have been published elsewhere. Meeks, 'Neuro-Crime Fiction'.

<sup>2</sup> Anne M. Lipton and Cindy D. Marshall, *The Common Sense Guide to Dementia for Clinicians and Caregivers* (New York: Springer, 2012), p.1.

<sup>3</sup> Bernard Coope, 'Dementia in the UK' in *ABC of Dementia*, ed. by Bernard Coope and Felicity A. Richards (Chichester: John Wiley and Sons Ltd., 2014), pp.1-4 (p.1).

<sup>4</sup> Georgios Theodoulou, 'Causes of Dementia' in *ABC of Dementia*, ed. by Bernard Coope and Felicity A. Richards, pp.5-9 (p.5).

<sup>5</sup> Hannah Zeilig, 'Dementia as Cultural Metaphor', *The Gerontologist*, 44.2 (2013), 258-267 (p.260).

geriatric medicine, neuro-psychology, and psychiatry'.<sup>6</sup> Moreover, she notes that this bio-medicalisation means dementia 'is no longer perceived to be a natural consequence of aging'.<sup>7</sup>

This inability to see such cognitive impairment – 'dementia' – through anything other than the neuromolecular gaze is bolstered by a continuous stream of dementia-centric headlines pertaining to, amongst others, the 'disease of the century', the naturalisation of medical terminology and promise of cures, and the proliferation of brain scan images.<sup>8</sup> Much as I argue for in the introduction, Burke does not seek an automatic reaction against neuroscientific epistemologies. Rather, she aims to consider the problems these produce in relation to our understanding and definition of personhood and subjectivity particularly in reference to those whose very personhood and subjectivity become dictated by their cognitive impairments. Following Burke, this chapter considers how medical models of dementia are translated in culture, particularly in relation to the fact that the ways in which we talk about dementia today have become inseparable from a disease model. More specifically, this chapter extends work by Burke, and Sarah Falcus and Katura Sako that looks toward detective fiction to explicate the schisms between biopolitics and pathological models of dementia. In doing so, it argues that in such narratives, protagonists living with dementia produce meaning, agency, and ideological critiques of the limitations of the neuromolecular gaze and a reality that

---

<sup>6</sup> Lucy Burke, 'The locus of our dis-ease', in *Popularizing Dementia: Public Expressions and Representations of Forgetfulness*, ed. by Aagje Swinnen and Mark Schweda (Bielefeld: Transcript Verlag, 2015), pp.23-42 (p.24).

<sup>7</sup> Ibid.

<sup>8</sup> Rebecca Anna Bitenc, 'Representation of Dementia in Narrative Fiction' in *Knowledge and Pain*, ed. by Esther Cohen, and others (Amsterdam: Radopi, 2012), pp.305-330 (p.305).

seeks futurity and biotechnological potential ahead of solving present injustices for those living with dementia.

Throughout this thesis, the theorisation of the neural implantation considers the epistemological hegemony of neuromolecular models of identity, subjectivity, personhood, health and cognitive difference that has emerged out of hitherto psychological depth models of the mind, person, and subject. As seen with plasticity and enhancement, which I have shown through my reading of *Limitless* inherently ties to neoliberal models, or autism, which has seen 'success' in models of difference valuing a productive worth, neoliberal cultures that ostensibly celebrate diversity that exist in health models that marketize bodies, brains, and cells are foundational in propagating neural implantations. Regardless of whether neoliberal ideologies are receding in a new age of populist isolationism, dementia, and in particular Alzheimer's, is no differently enmeshed in neoliberal marketisation. As Burke writes: Alzheimer's *is* 'a very neoliberal condition'.<sup>9</sup> It is certainly true that the neuro-turn and the neural implantation are epistemological and ontological shifts open to and experienced by many. Returning to the thesis's introductory quotation from Fiona Phillips, this goes towards the idea of the natural and automatic belief in science and material explanations and the notion that *we are all scientists now*. To borrow Stuart Murray's term in relation to autism, we all become 'witnesses' to the various cultural and societal neural implantations, including dementia diseases, and my interest is how this supposedly omniscient and omnipresent medical model underpinned by biopolitical imperatives is contested in fiction.

---

<sup>9</sup> Burke, 'Locus of our dis-ease', p.27.



'Dementia' is everywhere and is often phantom in effect. Unlike enhancement which is striven for, or autism which increasingly is understood through the 'born this way' paradigm, dementia is viewed as a potential outcome to avoid at all costs. The combination of medical and cultural representation and desire to avoid it creates these phantom effects and leads to dementia being 'implanted' in two ways. The first is through the individual diagnosis and lived experience of dementias as with autism. The other is the implantation of dementia as a phantom prospect, one framed as increasingly inevitable that is to be fought and protected against. This is to some extent evident in other categories of neural implantation, such as the parental fear that vaccination may cause autism or normative anxieties that may lead to phantom assumptions that a child may have ADHD. However, this phantom implantation of dementia is much more widely attributable because it reflects the subjective potential/anxiety of implantation without any symptoms or external factors (such as vaccination); a young person who does not have any brain or cognitive difference associated with dementias can become psychologically implanted due to anxiety and fear. Building on work by Sarah Falcus and Katsura Sako, I argue that such phantom implantations derive from biopolitical and statistical levels as well as cultural levels, whereby general diagnostic rates and 'horror' stories

come to impinge on the subjective self.<sup>10</sup> Knowing others who have it and wishing to avoid this fate becomes internalised and productive.<sup>11</sup>

This societal implantation of dementia affects in the form of a latent fear, the ghost of cognitive difference yet-to-come. This is born out of the neoliberal condition Burke describes as encapsulating Alzheimer's and reflects the biopolitical and disciplinary drive to protect and monitor health around 'dementia crises' and the fight against the aging brain. Denise C. Park highlights this issue:

Based on the public's recognition and fear of pathological age-related cognitive decline, the issue of whether one can combat this decline has become a highly salient issue. A casual perusal of print, electronic, and broadcasting media would seem to give reason for optimism. Pills and elixirs are guaranteed to keep the brain healthy and sharp. Brain-training programs promise even more — these programs are purported to enhance and “rewire” the brain to make it better than ever. There are popular books with amazing titles that promise to reveal the simple secrets of improving the mind and preventing dementias, including Alzheimer's disease. Nearly all of these claims are, at best, overly optimistic, and, at worst, blatant charlatanism. Nevertheless, the public's keen interest in this topic is matched by that of scientists, who have become deeply engaged in understanding how to improve the aging mind, or at least prevent its decline into dementia. In order to improve cognitive function, the aging brain must have plasticity — that is, the ability to change structure or function in a sustained manner in response to some type of external stimulation.<sup>12</sup>

---

<sup>10</sup> In *Contemporary Narrative of Dementia*, Falcus and Sako's description of 'the ethical need for the representation of dementia and the ethical dangers of such representations' encapsulates both the ways in which cultural narrative can resist damaging models of dementia, as well as compound them (6). Moreover, what I term the phantom implantation of dementia augments their description that 'this situation and statistical panic and shared precarity is discernible in public discourse of dementia' (11). Sarah Falcus and Katsura Sako, *Contemporary Narratives of Dementia: Ethics, Ageing, Politics* (London: Routledge, 2019).

<sup>11</sup> This links to Foucault's genealogy of sexuality in which he challenges the notion of the 'repressive hypothesis', arguing rather that anxieties over sexuality (and sexual difference) in the nineteenth century led to the proliferation of its discourses. The same is true of trans subjectivities today. In particular, trans women are vilified (often by parents) as a potential source of difference that could affect normative structures (often the child's normal sexuality). Regular television and media debates heighten these phantom implantations, and the more trans subjects are framed as different, the more hysteria and numerous are the phantom implantations.

<sup>12</sup> Denise C. Park, 'The aging mind: neuroplasticity in response to cognitive training', in *Dialogues in Clinical Neuroscience*, 15.1 (2013) pp.109-19, p.109-10.

Park notes how ‘pills and elixirs’ and ‘brain training’ promise the chance to not only stave off the aging of brain and its related diseases but enhance and improve normal or possible brain capacity. As chapter one explored, this gives credence to neoliberal ideas and attempts to think our way out of ‘problems’ such as aging that is ideologically constructed as being an economic burden, and the hope that technology can extend the ‘natural’ limits of life as Melinda Cooper explores in *Life as Surplus*.<sup>13</sup> Though Park explains these claims are the product of exaggeration and charlatanism, the fact that medical, biotech, and governmental institutions zealously explore these avenues conceals that the pathologisation of the elderly via diagnostic categories of dementia works explicitly to castigate certain older subjects through such narratives. In this biopolitics there are right and wrong ways to age and dementia is figured as the worst kind of aging and older person.

One of the crucial claims made in Park’s piece is that ‘the aging brain must have plasticity’. Indeed, like other neural implantations, dementias are also associated with neuroplasticity. Like my work in chapter one, Park aligns plasticity with being a means to self-care, longevity, and as being reflective of flexible constructions of a ‘healthy’ brain. In many respects, enhancement via plasticity and cognitive decline via dementias are discursive polar opposites. For one, if plasticity comes to represent a new normative state then it reflects the norm as being imbued with vitality and potential; dementias on the other hand align with old age and redundancy. For another, enhancement via plasticity, especially as considered in chapter one, increasingly aligns with enhanced abilities often manifesting as

---

<sup>13</sup> Cooper explains how biotechnology in the neoliberal age seeks ways to push beyond natural limits to create surplus value. Cooper, *Life as Surplus*.

exceptional memory, whereas dementias conversely reflect a reality of, and a dysphemism for, forgetfulness. Moreover, where the plastic brain reflects a site for improvement, and where autism is seeing a cultural shift from quests for cures to acceptance of material difference (in part because of its own coveted and often stereotyped abilities as depicted through the figure of the hacker in chapter two), dementias remain only diseases to be cured and feared. To be clear, it is not simply the medical model of dementia that I contest – like autism, there is no point trying to discursively argue it away – but rather the easy and uncontested adoption of it being a problematic or damaging disease. For instance, Alzheimer’s Research UK released a peculiar donations campaign in 2018, depicting a baby floating through a fluid body-like substance replete with brain-like electrical impulses. A voiceover informs: ‘we come into this world with a single instinct – survive, and it never leaves us whatever the challenge. No one has survived Alzheimer’s, but it’s a disease and that means it can be cured. We will find a way’.<sup>14</sup> Initially, it is the baby that seems peculiar given that dementia is predominantly understood today at least as a disease that affects older people. However, it goes towards arguments I make in detail below that cultural discourses around the dementias are now framed around the seeming potential that anybody could succumb to them: phantom implantations. Moreover, it furthers the recurring image that people living with dementia return to childlike states through behaviour and dependence on others. Ultimately, the advert makes for anxious viewing and reflects a simple narrative that it is a pathological disease to

---

<sup>14</sup> AlzheimersResearch UK, *Make breakthroughs possible* [online], YouTube 20 September 2018, <[https://www.alzheimersresearchuk.org/makepossible/?gclid=EAlaIqobChMlhOmw8qvT3QIVk-R3Ch0e0gUPEAAAYASAAEgJCvPD\\_BwE](https://www.alzheimersresearchuk.org/makepossible/?gclid=EAlaIqobChMlhOmw8qvT3QIVk-R3Ch0e0gUPEAAAYASAAEgJCvPD_BwE)> [accessed 18 July 2019].

be fought and cured – a simple narrative underpinned by a complicated welter of biopolitics, big pharma, technology, and cultural representation.

‘The public’s recognition and fear of pathological age-related cognitive-decline’ as Park puts it, is certainly apt. Notably absent from Park’s article is an interrogation of where this fear comes from, which is crucial. I argue that we need to reframe the debate: that phantom fears are not based so much on the reality of cognitive difference, but rather how this cognitive difference is regarded in society and culture and the biopolitical decisions that make living with or caring for somebody with dementia difficult. Put simply, in cognitive pathology terms, dementias have come to represent the end game nobody wants; indeed, dementias represent the race against the cognitive bottom, with neuroscience racing to cure it. An article in *Science News* headed ‘Autism may carry a benefit: a buffer against Alzheimer’s’, reports that ‘earlier studies have shown that the brains of people with Alzheimer’s have low brain plasticity, while people with autism seem to have high brain plasticity’.<sup>15</sup> In short, the suggestion is autistic people’s hyperplasticity may ‘protect them from dementia’.<sup>16</sup> It seems then that even other cognitive differences and implantations link discursively to the fight against dementias, with the tone of the article establishing a kind of hierarchy in which a benefit of autism may be that it prevents dementia. It is also a reflection of the neural implantation in its most materially basic terms in which people are the sum of their atypical brains.

---

<sup>15</sup> Laura Sanders, ‘Autism may carry a benefit: a buffer against Alzheimer’s’, *Science News*, 2 July 2014, <<https://www.sciencenews.org/article/autism-may-carry-benefit-buffer-against-alzheimer%E2%80%99s>> [accessed 12 August 2018].

<sup>16</sup> Ibid.

Park's argument is that we should seek opportunities to enhance our plasticity to safeguard our brain; however, in focussing solely on the science, Park ignores the cultural scripts and biopolitical imperatives underpinning the fear of the aging brain. Indeed, given my critique of plasticity in chapter one this chapter looks at how dementias link to plasticity and the fight against aging, in order, through detective fiction, to re-frame this from protective, prospective fear to a situation more reflective of reality, in which there is no cure and so non-medical narratives of acceptance, difference, and empathy ought to proliferate alongside rather than epistemologically secondary to the pathological model. With this in mind, it is first worth highlighting some of the dominant cultural figurations and discourses emerging around the pathology of dementias today, and the ways in which constructions of this disease align with other states of cognitive or brain difference, particularly autism. In doing so, my articulation of the neural implantation becomes apparent, that the representation of brain diseases, disorders, syndromes, and states is far from the specific diagnostic it claims to be in medicine, rather, once popularised and implanted into person, society, and culture, what are thought to be discrete categories blur into a more general understanding of 'cognitive difference', of those implanted with difference at a neurological level with various subjective and identity effects, and those whose selfhood is understood as cognitively normal.

### Figures and Fear

In terms of cultural representation, diagnostic rates, social fear and fascination, autism and dementia lead the discourse of cognitive difference. Despite their complete medical differences, they share many cultural and discursive properties.

For instance, despite the extremely pathological nature and discourse of dementias, a disease such as Alzheimer's is only able to be neuro-materially diagnosed post-mortem. In other words, for all the neuro-turn's focus on molecular material difference 'dementia can't be diagnosed from a brain scan'.<sup>17</sup> Similarly, despite the shift towards material models of autism, finding or testing for autism is behavioural rather than through imaging or genetic testing. Furthermore, the way in which dementias and autism are discussed in popular media and culture is often strikingly similar. For example, in 2018 the *Guardian's* Polly Toynbee wrote of fellow journalist Katharine Whitehorn's Alzheimer's: 'surely the real Katharine Whitehorn, the one in her right mind, is custodian of herself, arbiter of what or who is her real self and when to discard an empty husk?'.<sup>18</sup> This is typical of narratives surrounding what constitutes worth in regards to dementia, but it is specifically her reference to 'husk' that links dementia and autism here.<sup>19</sup> Chapter two in part examined the way in which autistic characters remain aligned with stereotypical autistic phantoms of withdrawal, of being what Bettelheim described as the subjective retreat into an 'empty fortress'.<sup>20</sup>

---

<sup>17</sup> Bernard Coope, 'Dementia in the UK', p.1

<sup>18</sup> Polly Toynbee, 'The writer Katherine Whitehorn would rather die than live like this', *Guardian*, 29 May 2018, Opinion section, <<https://www.theguardian.com/commentisfree/2018/may/29/assisted-dying-katharine-whitehorn-alzheimers>> [accessed 16 July 2018].

<sup>19</sup> Regarding the societal 'worth' of persons living with dementia, Burke writes, 'persistently described as catastrophic threat and unsustainable burden, dominant cultural representations of dementia associate the condition with the worst kind of aging (vulnerable, dependent, fragile) and present it as the greatest potential drain on economic and emotional resources'. Lucy Burke, 'Imagining a future without dementia: fictions of regeneration and the crises of work and sustainability', *Palgrave Communications*, 21 December 2017, 1-9 (p.4) <DOI: 10.1057/s41599-017-0051-y> [accessed 19 July 2018].

<sup>20</sup> Bettelheim, *The Empty Fortress*.

However, there is a crucial distinction in representation too. Chapter two concluded with a more nuanced and contemporary reading of autism, explaining that with the figuration of the hacker a form of sociality, agency, and self-justice is achievable through aspects and expressions of their cognitive difference. This is a discursive shift from Murray's witnessed 'fascination' to more personal, fully characterised representations of subjectivity and agency. Though still problematic, this shift allows for a cultural translation and redefinition of the pathologising neural implantation of this thing called 'autism' into a mode of being, characterisation, and identity that resists and repairs the cultural phantoms and biopolitical models that render autism a stigmatising or problematic entity, or which only 'accept' it when economically viable. Hence the symbolic importance of Salander and Jesse holding political and economic powers to account. As this chapter highlights unlike autism, dementia is not afforded these readily apparent alternative and emerging readings against ingrained notions of fear and otherness. This chapter explores this through the properties afforded by crime fiction, particularly at a subversive narratological level.

Chapter two begins with a media content analysis of autism in relation to figurations of the shooter and the hacker, ultimately arguing they represent the extreme poles of autism in culture and society today. We similarly see a dual representation with the dementia diseases which, like autism, are a media mainstay. On the one hand, tragic but important stories emerge highlighting the gross mistreatment and abuse some people living with dementia suffer in care homes.<sup>21</sup>

---

<sup>21</sup> BBC's flagship investigative journalism programme *Panorama* has produced a series of undercover documentaries exposing the shocking treatment in care homes, of which people living with



On the other hand, reports linking dementia and violence are not uncommon and externally imbue dementia subjects with a kind of abject violence. For instance, In 2011, *CNN* ran an article headed: 'when Alzheimer's turns violent', which begins 'one minute, Sam Cohen, 80, points to photos of his kids [...] The next minute, he unravels'.<sup>22</sup> This reads like a tagline to a fictional thriller. Elsewhere, questions of dementias and US gun control arise with reports like that of Dee Hill who told emergency services: 'my husband accidentally shot me'.<sup>23</sup> She was given 30 pints of blood and survived, with her husband Darrel found with a discharged gun oblivious to the fact that he had nearly killed his wife. Hannah Zeilig's research into metaphorical uses of dementia tells a similar story. She finds popular references to dementias as being a "millennium demon" and the need for a "crusade" to overcome it'.<sup>24</sup> She notes that here 'religion and war are neatly juxtaposed [...] an emphasis on faith and battle and on something that not only is metaphysical but can also be "won"', linking back to the Alzheimer's UK advert.<sup>25</sup> Likewise, Megan-Jane Johnstone notes that, among others, the 'epidemic' and 'military' metaphors associated with the dementia 'crisis' promote euthanasia as a possible solution to the challenges posed by the disease.<sup>26</sup>

---

dementia are regularly featured as being among the worst affected. See, 'Panorama: Crisis in Care', *BBC*, 29 May 2019 <<https://www.bbc.co.uk/programmes/m0005jpf>> [accessed 12 February 2020].

<sup>22</sup> Madison Park, 'When Alzheimer's turns violent', *CNN*, March 30, 2011, <<http://edition.cnn.com/2011/HEALTH/03/30/alzheimers.violence.caregiving/index.html>> [accessed 18 August 2018].

<sup>23</sup> Kaiser Health News, 'Families Confront Dementia and Guns', *U.S. News and World Report*, 27 June 2018, <<https://www.usnews.com/news/healthiest-communities/articles/2018-06-27/unlocked-and-loaded-families-confront-dementia-and-guns>> [accessed 18 August 2018].

<sup>24</sup> Zeilig, 'Dementia as Cultural Metaphor', p.260.

<sup>25</sup> *Ibid.*

<sup>26</sup> Megan-Jane Johnstone, 'Metaphors, stigma and the 'Alzheimerization' of the euthanasia debate', *Dementia*, 12.4 (2011), 377-393 (p.390).

However, these cultural metaphors of violence extend into images of the material brain itself. In 2018, *Nature* ran a feature headed: 'Is "friendly fire" in the brain provoking Alzheimer's disease?' with 'scientists want to combat dementia and neurodegeneration by keeping the brain's immune system from going rogue' as its subheading.<sup>27</sup> This eerie likening of the dementia brain as existing as a 'rogue' case of 'friendly fire' not only calls to mind the discourse surrounding the lone-gunmen of the USA, (who, as analysed in chapter two, problematically aligns with autism), but it militarised the brain to the extent that the very brain itself is at war with the self – especially when considered alongside the warlike rhetoric used in narratives that seek to 'fight' dementia. It seems that as much as we read that people living with dementia suffer at the hands of abusive carers, we read that biological deficits in the dementia affected brain cause persons to become and act more violently themselves, creating a fear of not only the disease as a problem that may affect you, but a fear of those currently living with the disease.<sup>28</sup>

This latent fear that it *may* affect you is often the ultimate fear, becoming implanted into those without a diagnosis of dementia, in a way that, unlike neural accessories adorned but easily removed, represent utterly abject possibilities. This is because hereditary and potentiality discourse surrounding dementia is widespread as seen in media reports such as the *Express's*: 'Dementia risk: Will I one day SUFFER

---

<sup>27</sup> Alison Abbott, 'Is "friendly fire" in the brain provoking Alzheimer's disease?' *Nature*, 24 April 2018, News feature < <https://www.nature.com/articles/d41586-018-04930-7> > [accessed 18 August 2018].

<sup>28</sup> Madeleine Liljegren, Maria Landqvist Waldö and Elisabet Englund, 'Physical aggression among patients with dementia, neuropathologically confirmed post-mortem', *International Journal of Geriatric Psychiatry*, 33 (2017), 242-248 <DOI: 10.1002/gps.4777> [accessed 18 August 2018].

from Alzheimer's disease if my parents do?'.<sup>29</sup> Despite the capitalised 'SUFFER' the article briefly explains that dementia diseases are generally not heritable, before noting that the 'rare types' that are heritable begin to show 'signs' in people in their thirties. The article neglects to mention any specific tell-tale signs of heritable dementia, but does note that 'high-blood pressure, being over-weight or under-weight, high cholesterol, excessive alcohol consumption and a general unhealthy lifestyle can increase your risk of dementia'.<sup>30</sup> This confusion has the effect of suggesting that, if you are already susceptible, you are in danger of making your brain a self-fulfilling prophecy. This is typical of the needless scaremongering around the potentiality of dementia given that vast swathes of today's population fall into one or more of the listed health situations or thresholds. In other words, this is indicative of associative leaps that sees 'friendly-fire' against the self emerging because of a failure to follow the steps suggested to maintain a healthy brain: as Burke notes, this truly is a neoliberal condition. The *Daily Mail* details these risk factors, writing 'how you socialise and how much sleep you get each night affects a person's risk of developing dementia'.<sup>31</sup> It becomes a fight against the aging brain, and the article includes a lifestyle quiz (sleep, five-a-day consumption, omega-3, aspirin, reading challenging books, stress) and marks your score, for instance '0-11: You have a high

---

<sup>29</sup> Lauren Clark, 'Dementia risk: Will I one day SUFFER from Alzheimer's disease if my parents do?', *Express*, 21 September 2017, <<https://www.express.co.uk/life-style/health/856994/dementia-alzheimers-disease-symptoms>> [accessed 19 August 2018].

<sup>30</sup> Ibid.

<sup>31</sup> Lucy Elkins, 'What's YOUR brain age? Take this test to find out and discover how simple lifestyle changes can knock years off', *Daily Mail*, 5 November 2014, <<https://www.dailymail.co.uk/health/article-2821157/Try-test-reveals-brain-age-read-knock-years-it.html>> [accessed 19 August 2018].

risk of Alzheimer's'.<sup>32</sup> At best this can be described as misguided, with inflammatory and scaremongering arguably more accurate.

Running parallel to this popular media narrative of fear and self-prevention (of which plasticity is key) is the task of addressing the reality of lived, implanted, and embodied dementia, rather than the phantom prospect of developing it. This task is left largely to neuroscience and the flagship of neoliberal bio-economics, the pharmaceutical industry, in a narrative running thus: if dementia is a crisis, one usually framed in economic terms, molecular medicine and big pharma are working to contain it. This is not something that this thesis necessarily contests, for if there are potential successful treatments these should be sought to combat the more debilitating, frightening, and painful symptoms grouped under the umbrella label dementia. Yet, a *Guardian* article titled: 'Dementia is too big a problem to walk away from – for Pfizer or any of us' highlights the prejudices entrenched in this narrative.<sup>33</sup> In it, Bart De Stoooper notes that despite the efforts of 'big pharma, biotech, government, universities, charities' – the royal flush of institutional research – 'there is currently no cure for any of the neurodegenerative conditions that give rise to dementia'.<sup>34</sup> However, he argues this should not deter the search for a cure. Perhaps rightly so, but not under the reasons he sets out. He makes two main arguments, one biopolitical: 'the economic burden of dementia'; and one emotional: 'the gradual loss of everything that makes us human'.<sup>35</sup> This chapter takes as its starting point a re-

---

<sup>32</sup> Ibid.

<sup>33</sup> Bart De Stoooper, 'Dementia is too big a problem to walk away from – for Pfizer or any of us', *Guardian*, Opinion section, 11 January 2018, <<https://www.theguardian.com/commentisfree/2018/jan/11/dementia-pfizer-alzheimers-research-big-pharma>> [accessed 11 January 2018].

<sup>34</sup> Ibid.

<sup>35</sup> Ibid.

figuration of this pharma logic. It maintains that while biomedical models of dementia are necessary to understand it pathologically in the hope that painful symptoms may be lessened, these models should not dictate the economic worth, social and cultural narrative, or subjectivity and personhood of somebody living with dementia. Entrenched ideas such as ‘burden’ and ‘loss of humanity’ have no place in such media rhetoric, not only because they are categorically false, but also because they are fuelled by fear be it of cost, or the effects of living with dementia. If, as is presently true, we have no immediate prospect of a successful treatment, why is everything invested in the neuromolecular gaze, and why is this search for answers propelled by fear?

The dementia diseases, and those living with them, represent an intense anxiety and fear which drives the need to find a solution in the form of a cure. I argue in this chapter that contrary to the more positive discourses we see in the guise of the autistic hacker, both real and fictional, which are emerging slowly beyond the mere ‘fascination’ Murray identifies into complex subjectivities, persons, and characterisations, with dementia there is little change in attitude. If there is a ‘fascination’ with dementia it is in the way in which we monitor its scientific progress and the narratives around prevention. It is the detection and monitoring of the disease through molecular models that preoccupies us: ‘dementia’ is suspect and we need to unlock its mysteries is a frequent media narrative.<sup>36</sup> However, dementia is

---

<sup>36</sup> See, Paul Cullen, ‘Irish research is unlocking the dark secrets of dementia’, *Irish Times*, 9 February 2016, <<https://www.irishtimes.com/life-and-style/health-family/irish-research-is-unlocking-the-dark-secrets-of-dementia-1.2520727>> [accessed 31 October 2018]. Katie Kindelan, ‘Will people with Down syndrome unlock the mystery of Alzheimer’s disease?’, *ABC News*, 22 June 2018, <<https://abcnews.go.com/GMA/Wellness/people-syndrome-unlock-mystery-alzheimers-disease/story?id=55942847>> [accessed 31 October 2018].

not just a medical condition, it is a phantom construction of prejudice and fear, with a corresponding neural state of DEFCON1 in the form of military and battle discourses. Indeed, such fear propels the search for a cure and consolidates the pathological model's hegemony, because if dementias are a mystery, objective scientific deduction and logical problem solving are key to overcoming it. This is precisely why crime fiction, particularly those working to solve a central mystery are ripe for mounting an ideological critique of this model. The generic expectation is that mysteries will be solved, and a status quo of some kind will return. However, I argue that in taking the neuro-turn and becoming implanted with dementias themselves – recent crime novels such as *Elizabeth is Missing* and *Turn of Mind* reject this quest narrative completely, and rather translate 'Alzheimer's patients' back into complex, agential, and subjective people through a resistance of generic expectation.<sup>37</sup>

### Searching for the Plot

I argue that in terms of resisting the pathologizing biopolitical narrative of fear and waste (both of subjectivity and economic), it is the structure of detective and mystery fiction rather than theme that best suits this task.<sup>38</sup> Inherent to crime fiction is a narrative investment in meaning making and explanation, moving from disparate

---

<sup>37</sup> Crime and mystery novels are far from the only narrative representations of dementia diseases. Burke notes that many dementia narratives focus on the strain it places on the immediate family. (Burke, 2015, p.33). Dementia is often also used as a sentimental device as in the popular film *The Notebook* (Cassavetes, 2004). The form of the crime/mystery genre demands action and requires that its protagonists have agency. With this in mind, I have found that it is in these narratives that characters living with dementia are most agential, often framed in some way through their own present perspective, as opposed to being passively discussed or existing only in memory.

<sup>38</sup> This is not to say that themes typical to crime fiction are irrelevant. For instance, though it goes beyond the scope of this chapter there is rich thematic comparison to make in that (the threat of) the care home replaces the isolated country house in much contemporary dementia detective narratives.

disorder to orderly containment; a structure bound to question and answer and the uncovering of history and fact. That these are the typical structures of crime/detective fiction makes it apparent why the form is so appealing and useful in discussing atypical brain states, particularly those as othered as dementia. The narratives surrounding dementia depict it as an evil to contain, a disease to overcome, a disease to stave off, as well as aligning the development of dementia as punishment for an immoral past, much like the narrative enterprise of containing, rehabilitating, and punishing criminals.<sup>39</sup> Moreover, media discourses that pertain to economic drainage, irritable violence, and depersonalisation, make the detective structure's inherent need to articulate, problematize, and answer, an ideal site for critical analysis. This chapter's literary analysis takes inspiration from the colloquial phrase 'lost the plot', referring to an inability to act within expected parameters or an action that belies sense, one not uncommonly associated with cognitive difference that represent seeming breaks from reality. This and others like it are euphemisms for a range of cognitive diseases and differences usually associated with the elderly, which GP Simon Atkin makes clear in his guidebook *First Steps to Living with Dementia*: 'patients frequently come to me in surgery saying that they are losing their mind or their "marbles" or have "completely lost the plot"'.<sup>40</sup> However, a productive tension arises when this genre typified by central plotting driving towards resolution and explanation – towards *finding* the plot – is implanted with a cognitive difference constructed as lacking plotting and cohesion as its central lived narrative

---

<sup>39</sup> There is fictional trend in which dementia serves as a punishment for the sins of the past. See, Andrea Capstick, John Chatwin and Katherine Ludwin, 'Challenging representations of dementia in contemporary Western fiction film: from epistemic injustice to social participation', in *Popularizing Dementia*, ed. by Aagje Swinnen and Mark Schweda, pp.259-251 (p.237).

<sup>40</sup> Simon Atkin, *First Steps to Living With Dementia* (Oxford: Lion Books, 2013), p.22.

feature. It is through this tension that this chapter makes its claims to agency, subjectivity, and a celebration and necessity of a slowed-down plotting contra the plastic narrative of cognitive enhancement, progress, evolution, and the fight against the aging brain as explored in chapter one.

In his influential *Reading for the Plot: Design and Intention in Narrative*, Peter Brooks argues that ‘plots are not simply organising structures’ – what usually distinguishes them from the ‘story’ which is the chronological order of events – ‘they are also intentional structures, goal orientated, and forward moving’.<sup>41</sup> Indeed, this can be read as the structure that underscores the plastic narrative theorised in chapter one; goal orientated and forward moving reflect enhanced-Eddie’s personal narrative, as well as the cultural work my reading of the film provides in highlighting the trappings of neoliberalism. Brooks attaches his theory of plot to Freudian psychoanalysis, enabling him to argue for plot’s inherent links to mortality by tying the repetitive qualities of fiction to the Freudian death drive’s compulsion to repeat.<sup>42</sup> In short: we read to end much as we live to die. However, as I outlined in my reading of *Limitless* the enhanced plastic narrative does not follow a death drive model, but a never-ending forward march. This is structurally different to typical thriller narratives in which ‘death’ (closure, containment, capture and so on) does occur. *Limitless* eschews this in part because cognitive-enhancement itself heavily invests in the fight against mortality, made evident in contemporary neuroscience’s

---

<sup>41</sup> Peter Brooks, *Reading for the Plot: Design and Intention in Narrative*, (Cambridge MA: Harvard University Press, 2003), p.12.

<sup>42</sup> Sigmund Freud, *Beyond the Pleasure Principle*, trans. by. James Strachey, (London: Hogarth Press, 1950), p.47.



fight against the aging brain.<sup>43</sup> *Limitless* does not fit Brooks' formulation, because the pill popping does not end as is expected in drug narratives. It does not end so because Eddie's cognitive difference creates the ultimate flexible neoliberal. In *Limitless*, as a neural implantation, neoliberal enhancement demands a re-writing of expected plotting, narrative is atypical because the subject is too.

Similarly, most striking regarding the plotting of crime fiction centring on dementias is how differently it works from expectation. Quoting Brooks at length here will allow me to properly contextualise this argument:

If I emphasise plotting even more than plot, it is because the participle best suggests the dynamic aspect of narrative that most interests me: that which moves us forward as readers of the narrative text, that which makes us, like the heroes of the text [...] want and need plotting, seeking through narrative text as it unfurls before us a precipitation of shape and meaning some simulacrum of understanding of how meaning can be constructed over and through time. [...]

Plot as we have defined it is the organising line and intention of narrative, thus perhaps best conceived as an activity, a structuring operation elicited in the reader trying to make sense of those meanings that develop only through textual and temporal succession. Plot in this view belongs to the reader's 'competence,' and in his 'performance' – the reading of narrative – it animates the sense making process [...].<sup>44</sup>

These two quotations emphasise the idea that both protagonist and reader are invested in the organising beat of plotting in order to achieve meaning making out of what could be otherwise a static or inaccessible collection of events. Plot also crucially ties to the performance of reading, placing an emphasis on the interpretative powers of the reader. Specifically regarding detective fiction, Brooks argues that the construction of meaning is achieved through the plotting of

---

<sup>43</sup> See for instance dedicated research programmes such as The Aging Brain Initiative at MIT, which seeks to tackle 'the burdens on the aging brain' through neuroscience and technology. <<https://picower.mit.edu/about/aging-brain-initiative>> [accessed 12 February 2020].

<sup>44</sup> Brooks, pp.35-37.

repetition, which ‘results in both the detection and apprehension of the original plotmaker, the criminal’.<sup>45</sup>

Many contemporary crime novels in which dementia plays a central role work differently to this. For instance, Paul Cleave’s *Trust No One* (2015) sees a New Zealand crime writer living with dementia absolve his guilt in the murder of his wife, only to forget the details of the real killer before he could make them known to the authorities; in short, justice and containment is not served as typically expected from detection. Julia Heaberlin’s *Paper Ghosts* (2018) is an American crime travelogue in which a woman kidnaps a man who may or may not have dementia, and who may or may not have killed her sister. This novel trades on uncertainties and the ending retains a sense of unresolvable mystery due to the nature of cognitive decline and memory, in other words, answers and history remain buried. In Alice LaPlante’s *Turn of Mind* (2012), Jennifer, a surgeon living with dementia is suspected of killing her best friend Amanda and is ultimately held in a secure facility despite the fact that the reader knows she is protecting the real culprit, her daughter. Emma Healey’s *Elizabeth is Missing* (2014) casts Maud, an elderly woman living with dementia, into the role of forgetful sleuth as she looks for her friend Elizabeth, who is hospitalised after a stroke, and who eventually comes to solve the historic disappearance of her sister Sukey. Much like *Trust No One*, however, Maud is unable to remember the details of her success, and at the close of the novel continues to search for her now dead friend Elizabeth.

---

<sup>45</sup> Ibid. p.25.

These novels are playing with generic expectation. They are the opposite of the sometimes melodramatic exposition that typifies detective and mystery narratives in which opaque details and clues are rendered clear.<sup>46</sup> The 'wow' moment here comes not so much when the reader realises the truth, but when the reader realises (while the protagonist with dementia does not) that the traditional ending is not coming after all. Therefore, through analyses of *Elizabeth is Missing* and *Turn of Mind* this chapter explores how the reader is forced to quickly recalibrate the sense of the ending, which effects how we might read or understand the lived experience of dementia.

*Elizabeth is Missing* features a 'detective' who solves a mystery but who cannot remember having done so. In this novel, the medical model of dementia as representing cognitive decline becomes a deficiency of expected plotting. Maud's written notes become disjointed 'events', which can be thought of as clues without conjunctions, that propel her with varying success to uncover the mystery. This does not happen as a forward-marching plot, but an altogether more atypical and meandering form of detection and resolution. Whereas in *Turn of Mind*, the fact that Jennifer remains viewed as guilty at the close of the novel forces the reader, as Brooks argues of endings, to retrace the middle. In doing so, the expected point of the detective structure becomes something of a red herring; it is not about finding the killer or even exposing the truth, but about finding the meaning made from fictional perspectives of somebody living with dementia. The remainder of this

---

<sup>46</sup> Detective novels in the style of crime fiction's golden age employ this exposition at the end of the narrative. Similarly, viewers of detective television series such as *Murder She Wrote* (Fischer, 1984-96) watch in the knowledge that the perpetrator will always be revealed, often dramatically, at the end of the episode.

chapter looks at how notes and journals work as catalysts for plotting in these novels, before reconsidering Catherine Malabou's plasticity. I argue these novels offer something different to Malabou's plasticity and neoliberal investment in the brain, and theorise what an 'elastic', rather than plastic, narrative might mean.

### Notes and Journals

A common motif running through much dementia crime fiction is the objectification and externalisation of memory. Past events are recorded in journals, notes, and photos and become dynamic and shaping clues and directions in the narrative.<sup>47</sup> *Elizabeth is Missing* is exemplary in this regard. It is a first-person mystery novel told from the perspective of Maud, an eighty-two year old woman living with dementia. In it, she is convinced that her friend Elizabeth is missing. The reality is that Elizabeth is in hospital following a stroke, with Maud constantly unable to remember visiting her. Maud's belief that she is missing is obsessive and the majority of the present narrative is concerned with her sleuthing work. Running parallel to this is an historic narrative, in which Maud remembers the unsolved disappearance of her sister Sukey whose body is found near the end of the novel. I wish to look at Maud's use of note-making to argue it is through this she finds a unique form of agency in the form of a forgetful sleuth.

Despite forgetfulness running against the grain of typical modes of detection, Maud's technique echoes the classical deductive methods of Sherlock Holmes:

---

<sup>47</sup> Aside from the two novels this chapter considers, drawings made by a woman living in a care home with dementia drive the plot of Helen Fitzgerald's *The Exit* (2015). The culprit in Julia Heaberlin's *Paper Ghosts* (2018) is a photographer living with dementia whose photos are the clues to a historic disappearance. Paul Cleave's *Trust No One* (2015) centres on a middle-aged crime writer living with dementia whose journals are the only proof that he did not kill his wife.

The thing is to be systematic, try to write everything down. Elizabeth is missing and I must do something to find out what's happened. But I'm so muddled. I can't be sure about when I last saw her or what I've discovered. I've phoned and there's no answer. I haven't seen her. I think. She hasn't been here and I haven't been there. What next? I suppose I should go to the house. Search for clues. And whatever I find I will write down. I must put pens into my handbag now. The thing is to be systematic. I've written that down too.<sup>48</sup>

Maud employs the hallmarks of detective work here, but her 'systematic' approach is confused by her inability to remember coherently. Writing is key to establishing her personal (detective) narrative, and the extensive and muddled notes she makes throughout become her 'paper memory'.<sup>49</sup> The above quotation reflects the present narrative in microcosm; Maud cannot remember what she has already discovered, she knows she has to continue searching, and makes notes accordingly from the pen and paper she keeps in her handbag and pockets. There are two types of notes in the novel. The ones Maud writes for herself, and the ones written for/about her, such as by her daughter Helen: 'the plate has a note attached: *Lunch for Maud to eat after 12 p.m.*'; 'I've got a note here telling me not to go out'; and by her doctor who 'writes and writes on his notepad. He writes and writes. He doesn't look up and he doesn't speak'.<sup>50</sup> Where the former provide a means of agency, the latter are directive. Maud's personal notes are this chapter's focus.

Given the narrative is told through Maud's first-person perspective, and given she explains how much she dislikes the neuromolecular gaze, which we know because the word 'plaque' makes her 'angry', as well as her dislike of 'the sight of squiggly lines spidering over the brains', it is unsurprising that literal neuro-discourse

---

<sup>48</sup> Emma Healey, *Elizabeth is Missing* (London: Penguin, 2015), p.22.

<sup>49</sup> *Ibid.* p.14.

<sup>50</sup> *Ibid.* p.5; p.6; p.156.

is largely absent from the novel.<sup>51</sup> Society largely only sees dementia at a biopolitical level and through the disease model, reflected much more apparently through Jennifer's medical gaze in *Turn of Mind*; however, Maud eschews this model and forces the reader to as well. To this extent, instead of literal brain materiality, Healey writes Maud's brain through metaphor. Her notes are not only her 'paper memory' they are also a literary rendering of her brain. This material externalisation of memory that preoccupies much dementia fiction is a simple metaphor with two strong messages. First, the classification of a 'dementia' brain deems one's independence and privacy annulled. The degenerative brain is no longer considered up to the task of independent agency and is interfered with and monitored. There is a degree of this in *Elizabeth is Missing* through the directive notes her daughter and doctor write; however, this is more explicit in *Turn of Mind* where Jennifer's journal is written in by others. Second, text and image perform actions the brain can no longer do. These go to the very core of the crisis surrounding the dementia brain, in that they force the question, *how much of the crisis is actually about deficiencies of the brain?* Maud's cognitive decline does not stop her from detection, rather her notes create an alternative mode of narrative and self-plotting. Removed from usual thought processes, she adapts – not in Malabou's sense of radical metamorphosis – but into a narrative of alternative cognition: different not other.

The link between paper and brain is evident throughout as 'brain' often accompanies the instances when the notes direct Maud into detection. For example, after surveying her notes and suspecting that he has been violent to Elizabeth, Maud

---

<sup>51</sup> Ibid. p.160.

decides she must call Elizabeth's son. 'I rest the receiver [...] and flick through the bits of paper on my lap [...] The drone of a car somewhere in the distance is like a fly buzzing under glass, like a memory flinging itself at the surface of my brain. I pick up the phone and hold the next note under the lamp: *Where is Elizabeth?*'.<sup>52</sup> There is a sense that the notes are surrogate to that which the brain is no longer able to articulate. She needs the external notes because words 'slip, easily, through the gaps in my brain'.<sup>53</sup> Moreover, when searching Elizabeth's house Maud's 'brain is unreasonable' in its inability to understand conflicting sensorial messages.<sup>54</sup> However, she is able to articulate this clearly in writing: '*Elizabeth's house searched – DEFINITELY not there*', and then 'tuck the note away' as if filing a memory in her 'unreasonable' brain.<sup>55</sup> Similarly, when her doctor tests Maud's memory ability he asks her to repeat three words, but Maud can only remember one and then almost instinctively reaches for her notes.<sup>56</sup>

Towards the end of the novel the link between brain and note becomes indelible and desperate:

I feel in my pockets for notes, but there's nothing there, just a few threads and emptiness. I've no notes at all. The lack makes me feel sick; I'm cut loose and whirling about in the wind. I wring the fabric of my coat, scrunching up and down in panic. And then, inside the ripped lining, I find one small blue square with my writing on it: *Where is Elizabeth?* 'Elizabeth is missing!' I shout. I shout so the part of my brain that forgets will stop forgetting.<sup>57</sup>

---

<sup>52</sup> Ibid. p.49.

<sup>53</sup> Ibid. p.108.

<sup>54</sup> Ibid. p. 115.

<sup>55</sup> Ibid. p. 116.

<sup>56</sup> This automatic searching for her notes reoccurs later, as Maud explains, 'I peer through the window and scrabble in my bag for something, anything'. Healey, p.208.

<sup>57</sup> Healey, p.236.

Realising how much Maud relies on the notes and how they come to represent a different cognitive function, the ‘few threads and emptiness’ is terrifying. These pockets, which along with her bag store her notes, are now empty. Previously, the pockets had been full, if not with notes, but tissues ‘twisted like the limbs of trees and fraying into dust at the edges’.<sup>58</sup> This twisted material fullness represents a neuronal image of a brain beginning to fray at the peripheries, yet among the tissue Maud still finds her continuous self-plotting: ‘*Where is Elizabeth?*’. However, now the pockets are threadbare and empty and an almost addictive quality takes over Maud – ‘lack’, ‘whirling’, ‘scrunching’, ‘panic’ – as she desperately searches for any note. Then, Maud experiences a euphoric mania upon finding one and with it re-finding her agency through atypical narrative, as she shouts aloud to her forgetful brain as if rejoicing over surpassing the limits imposed (biological and socially) by her dementia. This mirrors my close reading of Jesse in *The Code*, whose need to hack – to make use of the atypical narrative that most suits him – similarly manifests as a lack and as an addictive quality.<sup>59</sup> This is why when Maud previously throws the notes away because ‘they think [she’s] a dotty old woman’ (an explicit criticism of her atypical mode of cognition and self-narration), she is later ‘digging a whole lot of [her] notes out of the wastepaper basket’ having realised their importance in enabling and signifying a different though acceptable mode of life narrative.<sup>60</sup> Moreover, this is why she

---

<sup>58</sup> Ibid. p.125

<sup>59</sup> There are considerable links between the dementia and autism crime and thriller narratives. For instance, in *The Code*, Jesse describes the need to solve the code as being a ‘splinter’ in his brain, which is precisely how Maud’s semi-conscious detection of her sister also seems to occur. She explains, ‘an ancient noise, like a fox bark, makes an attempt at the edges of my brain’. Healey, 2015, p.2.

<sup>60</sup> Healey, p.81, p.86.



makes sure to keep the notes ordered 'in neat piles' and why it is painful as a reader to read Helen's demand: 'give me the rest of the notes [...] I'll put them somewhere safe'.<sup>61</sup> This echoes the same loss of agency Jacob feels when his pencil is confiscated during his trial in *House Rules*, or that Jesse feels being unable to go online, or how Salander feels in hospital before somebody smuggles in her tablet.

That Maud is viewed as a person living with dementia is an unavoidable fact. However, her first-person narrative avoids the typical representation of a diseased brain. Of course, reading the novel is at times painful, claustrophobic, and even terrifying in its narrative unsurety, and under no uncertain terms is living with dementia presented as a wholly enjoyable narrative. Reading the novel as agential through note taking is not intended to argue for a positive reading of dementia, but rather an acceptance of a different form of lived narrative, and of different dementia narratives than those pertaining to dependence and senility. Thus, her notes provide a personal re-figuration of what living with dementia means; if she is neurologically implanted with a defective brain, she established a new ontology resisting this through writing. Her family, carers, doctor, police, and public see an inability to narrativize presence coherently, but Maud solves this inability through her notes. Neurological deficit is translated into a metaphor and an enacting of agency and she is ultimately able to solve the historic disappearance by finding her sister's body, even if she cannot remember having done so herself.

---

<sup>61</sup> Ibid. p.136; p.60.

*Turn of Mind's* protagonist similarly lives with dementia but is a sixty-four year old (former) hand surgeon named Jennifer White, who is the prime suspect in the murder of her closest friend and neighbour Amanda. Where Maud is characterised as the forgetful sleuth, Jennifer is characterised as a forgetful suspect and represents the articulation of dementia as having a propensity to violence as seen in the above news articles. At the end of the novel she is incarcerated in a facility for the murder of Amanda, but we learn that it was in fact her daughter Fiona who killed Amanda, with Jennifer amputating her fingers in order to release the medallion Amanda had snatched from Fiona's neck just before she was killed. Continuing the theme of writing I will look again at how and note making is employed in this novel. If notes establish a sleuthing agency for Maud, Jennifer's notebook acts somewhat antithetically, much more in accord with a sense of an annulment of privacy and independence.

It is immediately apparent that the instinctual directive properties of Maud's notes are rendered more philosophically in Jennifer's:

The notebook is a way of communicating with myself, and with others. Of filling in the blank periods. When all is a fog, when someone refers to an event or conversation that I can't recall, I leaf through the pages. Sometimes it comforts me to read what's there. Sometimes not. It is my Bible of consciousness.<sup>62</sup>

Like Maud's 'paper memory', Jennifer's notebook is her 'Bible of consciousness', and like Maud's explanation that with notes 'the thing is to be systematic', Jennifer explains 'I have a system. I take a sheet of lined paper. I write down notes'.<sup>63</sup> However, the key difference is that where Maud's detective narrative is repeatedly

---

<sup>62</sup> Alice LaPlante, *Turn of Mind* (London: Vintage, 2012), p.5.

<sup>63</sup> *Ibid.* p.3.

spurred on by her re-finding the 'Elizabeth is missing' notes, Jennifer is the prime suspect, *she* is being detected and suspected and her dementia implantation centres around the possibility of deviance: she cannot seem to remember the truth because of her dementia. The notebook's signification in this novel is confusing. On the one hand, it does seem to shape and order Jennifer's narrative; the notebook is present only in the first and largest section of the novel, which is the most cohesive and orderly narrative to read. In Part One Jennifer is at home and narrates in the first person. Part Two remains in the first person but is much more fragmentary as Jennifer is confined to a care facility, whilst Part Three is predominantly written in the second person, and Part Four is a confusing mix of first, second and third person narrative voices. Initially, this seems to suggest that like Maud's writings, Jennifer's notebook helps to establish an alternative but present narrative, with its disappearance after Part One indicating a loss of narrative stability. On the other hand, a close reading of the novel shows the notebook to be an object for manipulation and prejudice. Those around her write in the notebook and so the simple self-directing sanctity of Maud's notes is lost; like the Christian bible, Jennifer's bible of consciousness is written by multiple sources with multiple stories.

To this end, Peter Hühn's suggestion that there are always two stories within detective fiction is informative. The first, he argues, is the story that culminates in the revelation of the crime restoring 'the coherence of social reality', while the second is 'the progressive reading of the first story of the crime' that also presents as an act of writing.<sup>64</sup> By this he means the story read by the reader as written by a

---

<sup>64</sup> Peter Hühn, 'The Detective as Reader: Narrativity and Reading Concepts in Detective Fiction', *Modern Fiction Studies*, 33.3 (1987), 451-466 (p.457).

chronicler within the text, a technique made most famous by Dr Watson's chronicling of Holmes' success. However, Hühn also suggests that because the Watson/writer figure does not always understand the complexities of how the case is solved, the reader is placed in the role of the detective too. In other words, in order to read the clues/writing for meaning 'we are confronted by a signifying "surface" whose signified meaning we are meant to find out by reading'.<sup>65</sup> As explained, writing does not play a unifying or cohesive role in *Elizabeth is Missing*, rather, it is instinctual and directive offering a form of atypical narrative and plot largely exclusive to Maud: the reader does not fully understand the links because they remain unwritten by the forgetful detective herself. However, where writing for Maud provides agency, writing for Jennifer is confusing and is neither a means to solve the mystery as with Maud, or to chronicle as with Watson. Rather, as I argue below, writing becomes tainted for Jennifer and so sheds it in order to experience life momentarily, in a happy, atypical, narrative style.

Unlike Maud's more simplistic directive memos, Jennifer explains that her 'notebook lately has been full of warnings', and there is an ominous thread that runs through the notebook's entries as past and fraught encounters with Amanda are remembered and recounted.<sup>66</sup> However, the notebook is used by everybody close to her, and it is this which prevents it from providing the simple narrative direction we see with Maud; rather, it becomes a receptacle for interference from her carer Magdalena as well as her squabbling children Fiona and Mark. This is the reason for Jennifer's suspicious tone towards Magdalena: 'I catch her writing in my notebook',

---

<sup>65</sup> Ibid. p.458.

<sup>66</sup> LaPlante, p.8.

which is understandable given the infantilising school report comments Magdalena leaves in her journal, 'Jennifer you are having a bad day. Jennifer you have had a bad week', which becomes downright dehumanizing: 'what has been lost? Your poor, poor mind. Your life'.<sup>67</sup>

Despite its use in ordering her memories and thought, Jennifer cannot trust the notebook any more than the reader ultimately can upon learning the truth of Amanda's murder. We realise that it is an obfuscation of the truth. A key difference between Maud and Jennifer is that Maud's notes constantly remind her of Elizabeth and her sense of self, of her purpose, whereas Jennifer's notebook despite its frequent references to Amanda fails to remind her of the truth of her death because 'the details won't stick'.<sup>68</sup> The relative degrees of trust the two protagonists have towards writing is made clear here. For Maud, words slip easily out of her brain and are stored on paper. The relationship is inverse for Jennifer, in which the paper holds the information but the brain will not receive it. In *Turn of Mind*, writing is not invested with the same ability to order the truth of detection (as with Dr Watson and Holmes), or uncover the true history (as with Maud's Elizabeth notes that lead her to Sukey's body), but rather the opposite. For one, as mentioned the notebooks are obfuscatory and do not contain the truth of the initial crime; this is in part because

---

<sup>67</sup> Ibid. p.27; p.54.

<sup>68</sup> Ibid. p.34. This word recurs in reference to Jennifer's memory. For instance her long-time friend Peter tells Jennifer '*Some things stick*', in the hope she remembers their conversation (p.117 original italics). Jennifer later explains 'Some things do stick. I do what my neurologist friend Carl suggests and scan my memory' (p.128). Carl subsequently visits her to try to help smooth the relationship between she and her son Mark, telling Jennifer '*Sometimes things stick. Promise?*' (p.213, original italics). When her son Mark visits he tells Jennifer '*I'm actually sorry you won't remember this one. Because I want it to stick*' having detailed his father's previous sexual misconduct with his girlfriend (p.226). Finally, during the confession to the police office Jennifer repeats 'Some things stick' (p.291).

of the forgetful nature of dementia, but also because in ceasing to write – and therefore following Hühn in ceasing to attribute explanation and meaning making – Jennifer is able to protect her daughter’s guilt. However, there is a second crucial signification of the notebook’s subsequent absence in that it reflects how her brain has become an object for suspicion and interference, reflective of the way dementia is treated by contemporary biopolitics.

At first glance the shift from the first person to a mixture of narrative voices could be read as indicative of a loss of personal narrative coherence and agency, particularly given the importance placed on the first-person in *Elizabeth is Missing*.<sup>69</sup> However, under scrutiny it is in these two sections that Jennifer’s narrative and subjectivity is, *because* of the shift in person, most fully realised. That she escapes the facility at the end of Part Two is crucial in developing this reading. While Part Two is mostly in the first person there are instances of second person narration, for example when describing the facility Jennifer uses language more typical of precisely written instruction manuals or recipes: ‘there is colored tape on the rich carpet [...] This is a linear world. You go straight. You make right turns of left turns’.<sup>70</sup> This sense of strictly ordered confinement for a person so used to personal autonomy is key to understanding the subsequent Part’s shift in narrative voice. In the typical linear world everything is ordered, everything makes a temporal sense. This mirrors the Mexican artist Donnatella Alvarez’s assessment of America and Eddie (and the ideals

---

<sup>69</sup> Burke writes that the first person narration ‘interpellates and engages the reader’ creating an ‘ethics of relationality’ that encourages the reader to grapple with what it means to live with cognitive difference. Lucy Burke, ‘Missing pieces: trauma, dementia and the ethics of reading in *Elizabeth is missing*’, in *Dementia and Literature: Interdisciplinary Perspectives*, ed. by. Tess Maginess (Abingdon: Routledge, 2018), pp.88-102 (pp.98-9).

<sup>70</sup> LaPlante, p.153.

of plastic subjectivity) in *The Dark Fields* as only looking towards the future, in her words: 'for you [time] is in a straight line'.<sup>71</sup> However, Jennifer's subjectivity, like Eddie's, is not typical.<sup>72</sup>

The 'I' she uses in the first two parts is de-personalised through the biopolitical scrutiny and confinement that leaves her viewed as diseased and deviant.<sup>73</sup> Moreover, Jennifer's loss of agency is cemented in a letter written by her son outlining and asserting his power of attorney over her. In it he writes: '*you gave me this power. I didn't ask for it. But, having been given it, I intend to fulfil my duties. You could take it away, of course. You could do what Fiona is trying to convince you to do (yes, I read through your notebook last time I was there) and strip me of this power. But I think you know it would be a mistake*'.<sup>74</sup> This letter claims power over her medical and legal autonomy as well as admitting that her journal (her attempt at subjective plotting) is being read and written in. Additionally, the agency of her 'I' is delegitimised by the facility directing her into a strict linear routine. To compensate and reclaim, she takes a 'turn of mind', a turn of perspective, a turn of narrative person. After all, Magdalena previously suggests: 'if it helps, write in the third person. Tell me a story about a woman who happens to be named Jennifer White'.<sup>75</sup> This move allows her space to self-plot where she is not just seen as a 'forgetful suspect',

---

<sup>71</sup> Glynn, *The Dark Fields*, p.154.

<sup>72</sup> Jennifer makes continued reference to her diseased brain. For instance, 'This half state. Life in the shadows. As the neurofibrillary tangles proliferate, as the neuritic plaques harden, as synapses cease to fire and my mind rots out, I remain aware. An unanesthetized patient'. LaPlante, p.8.

<sup>73</sup> This reflects the kind of problematic phantoms which see cognitive difference annex to criminal deviance, as explored in the previous chapter in reference to autism.

<sup>74</sup> LaPlante, p.71

<sup>75</sup> Ibid. p.34.

but a space in which her particular and unique subjectivity of dementia comes to the fore, rather than the generic diagnostic lens she is seen through.

This is made clear by the shift to second-person in Part Three. It would be easy, but I argue inaccurate, to suggest that the shift from first, to second, to third person signifies Jennifer's increasing dissociation from selfhood as her Alzheimer's worsens. Rather, I argue the opposite happens, if only we begin to look, not from the hegemonic neuromolecular disease model, but a more phenomenological one. As mentioned, Jennifer's notebook (and by extension her use of the pronoun 'I') is tainted by interference. Where Maud's trust in 'I' remains mostly constant throughout in 'guiding' herself and the reader through the narrative, Jennifer's is abandoned. Not, as a result as Magdalena thinks of her loss of 'life' through dementia, but to escape being an object to be handled because of society's construction of dementia. Indeed, the care facility encourages 'wandering', but Jennifer explains that this wandering is not free-range and agential as with Maud, but rather strictly ordered. 'They've set up a kind of trail. A labyrinth for the mentally deficient. On any given hour, there might be two or three of us traversing the loop. If someone tries to wander more randomly, they are stopped and firmly put back on trail'.<sup>76</sup> The narrative shift to the second-person allows Jennifer a different kind of freedom to explore, not a strictly ordered loop, but an agential elastic subjectivity, and it is here that we see Jennifer happiest, at times revelling in her atypical reality.

She finds herself in a bar at first thinking herself to be a medical student. Jennifer, now in a present second-person narrative voice explains: 'you love it here.

---

<sup>76</sup> Ibid. p.159.



You will come back every night'.<sup>77</sup> She then strikes up a conversation with two young people and her enjoyment intensifies as historic student experience mixes with present dementia, creating a clarity for herself and us as readers. 'You are laughing. It has been so long since you have enjoyed yourself so much. These fresh young faces, their ease, no trepidation around you. You realise that you have been frightening people. That thing you see in their eyes, it is fear. But what have they to fear from you?'.<sup>78</sup> Not only is this the first time the reader sees Jennifer truly enjoy herself, but this 'you' gestures towards the reader, making them complicit in the experience and aligning them with Jennifer; however, the 'you' also carries a significant amount of shame when read: exactly what do we readers have to fear from Jennifer, or from people living with dementia more generally? This more carefree and relatable 'you/Jennifer' continues into a parade where she sees 'people everywhere, holding hands, linking arms [...] It is a party. It is a fairyland. You plunge deep into the festive night'.<sup>79</sup> Here we see the 'neuromolecular gaze' dissolve into phenomenological experience. It is a beautiful example of the worth Laura Salisbury places in the neuronovel; for Salisbury they do not simply 'duplicate [...] neurobiological accounts' but instead show how the flattened psychological 'contours [can be] retraced' through narrative fiction.<sup>80</sup> Indeed, returning to Hühn helps further elucidate Salisbury's point. As noted above, he argues that in reading crime fiction 'we are confronted by a signifying "surface" whose signified meaning we are meant to find

---

<sup>77</sup> Ibid. p.242.

<sup>78</sup> Ibid. p.245.

<sup>79</sup> Ibid. p.252.

<sup>80</sup> Laura Salisbury, 'Translating Neuroscience: Fictions of the Brain in the 2000s', in *The 2000s: A Decade of Contemporary British Fiction*, ed. by Nick Bentley, Nick Hubble, and Leigh Wilson (London: Bloomsbury, 2017), pp.83-113, p.110.

out', and this is precisely what happens here. Given the nature of the genre, readers are primed to read for clues and meaning, just as doctors and neuroscientists are primed to 'read' the 'signifying "surface"' of the brain.

Thus, the alterity of this phenomenological experience in a novel that otherwise trades on the uncovering of secrets and deception is noteworthy and signifies a different mode of being. That this section follows Jennifer as being a first-person 'forgetful suspect' is crucial as a study in relief. The reader sees the difference between how the same person living with dementia can be framed in two distinct ways: violent lunacy or confused contentment. Here Jennifer is not read through a prejudiced dementia lens, but as a person simply *experiencing*, always in the present participle. Indeed, much like how my reading of Maud takes to task the necessity of the incessant forward march of plot, Jennifer's simple presence in this section acts differently to Brooks' examination of the present participle in *plotting*; for him it reflects how readers and characters 'want and need plotting' as a simulacrum 'of how meaning can be construed over and through time'.<sup>81</sup> Maud and Jennifer reject this, adapting to a much more elliptical and present conception of lived narrative, one in which the detective genre's preoccupation with 'uncovering' comes in the form of uncovering an atypical narrative subjectivity.

### Elastic Bands or Pleistocene?

Underpinned by central mysteries, writing allows implantations of dementia to be understood differently. In *Elizabeth is Missing* writing sees Maud become an agential, though often confused, sleuth. In *Turn of Mind*, a reclaimed perspective through the

---

<sup>81</sup> Brooks, p.35.

second person radiates in relation to the biopolitical suspicion read in Jennifer's journal or the loss of agency typified by the letter her son writes. However, these novels do more than challenge the perception of dementia as leading to de-agential cognitive decline; they challenge the limits of normal or typical cognition, which is to say those that make claims to potential, to the plastic subject; indeed, those exaggerated in Eddie's plastic narrative which proves itself to be limitless only in the forward direction.

The alignment of the plastic brain with limitlessness is typical of the neoliberal discourse that permeates society and culture. Eddie's narrative in *Limitless* cannot and does not look backwards in any ethically reflective way; rather, it continually pushes forward, endlessly reforming in the model of formative plasticity considered by Catherine Malabou. Malabou attempts to harness the theoretical implication of plasticity to underscore a new mode of being, one that harnesses the plastic potential of our brains in a radical, self-adaptive way.<sup>82</sup> However, the fact that this discourse has become aligned with one of the things she argues against, the trappings of late capitalism, makes it hard to read the plastic brain and the plastic narrative of *Limitless* as anything other than an indictment of the problems of such modes of being. Neural enhancement through the brain's latent plasticity makes Eddie a super-human, but at the cost of ethical responsibility. At the end of *Limitless* there is no criminal justice despite, or rather *because* of, the fact that crime is endemic in Eddie's world, a world in which plastic neoliberalism is excused as perhaps the only remaining viable mode

---

<sup>82</sup> In the introduction to *What Should We Do with Our Brain?*, Malabou repeatedly informs the reader that they do not realise their latent plastic potential. 'Our brain is plastic and we do not know it' (p.4); 'we are living at the hour of neuronal liberation and we do not know it' (p.8); 'humans make their own brains, and they do not know they do so' (p.12). It is a compelling rhetorical device seeking to impress upon the reader their ability to harness their brain's potential.

of self-production. Burke has critiqued Malabou's work on plasticity and dementia in a reading of *Elizabeth is Missing*, taking to task Malabou's theorisation of neural subjectivity in regards to people living with dementia. For instance, in *The New Wounded* Malabou argues that 'it is entirely possible that there will be no relation between the identity that comes before a lesion or trauma and the identity that comes after, that, once again, the new identity will be unprecedented' using Alzheimer's as an exemplar.<sup>83</sup> Burke counters this through an ethical lens writing that in Malabou's work 'dementia is figured as a voided (yet paradoxically productive space) in which the particularities of individuals are lost and recast in the image of Alzheimer's disease; all difference becomes *indifference*, all actions and behaviours become Alzheimer's'.<sup>84</sup>

Extending this, I wish to argue that ideas of 'plastic time', such as the narrative we see in *Limitless*, as well as Malabou's own conception of 'le voir venir' (the inherent futurity involved in 'to see what is coming') are problematic.<sup>85</sup> I argue that there is a different message emerging from recent fictional dementia narratives, one that does not stress destruction or degeneration, but perhaps more positively, and to continue the biological metaphor, offer a necessary 'antidote' to the ethical limitations of *Limitless's* plastic narrative.<sup>86</sup> When extrapolated, such limitations are

---

<sup>83</sup> Catherine Malabou, *The New Wounded: From Neurosis to Brain Damage*, trans. by Steven Miller, (New York: Fordham University Press, 2012), p.19.

<sup>84</sup> Burke, 'Missing Pieces', p.93. Original italics.

<sup>85</sup> Malabou argues '*voir venir*' is the '*anticipatory structure* operating within subjectivity'. Catherine Malabou, *The Future of Hegel: Plasticity, Temporality, and Dialectic*, trans. by Lisabeth During, (Abingdon: Routledge, 2005), p13. In his introduction to *The Future of Hegel*, Jacques Derrida supplements this definition. It is 'to anticipate, to foresee, to presage, to project [...and] means at the same time to anticipate and to let oneself be surprised'. In other words, inherent to plasticity is both being sure and not knowing what is coming. Jacques Derrida, 'Introduction', in Malabou, *Future of Hegel*, p.ix.

<sup>86</sup> David MR Orr similarly uses the word 'antidote' in reference to *Elizabeth is Missing's* cultural work. He argues the novel's narrative antidotes against the prevalence of neuro-models in contemporary

evident in the seeking of cognitive enhancement as a means of dealing with major contemporary problems: the notion that we will ‘think’ our way out of these messes. For instance, the climate emergency continues, like Eddie’s narrative, with no full stop, but with the latent expectation that somehow scientists, will think, adapt, or invent our way out of the problem, much as how Eddie has a scientist produce a drug to combat the negative expression of NZT enhancement.<sup>87</sup> In other words, rather than slowing down or stopping, we simply adapt to the changes through new technology. If Eddie’s plastic narrative encapsulates this hubris perfectly, and *Nexus*’s speculative world remains cautiously optimistic towards enhancement technology despite the social and cognitive hierarchy it intensifies, then alternative narratives need to emerge. Narratives that orient away from futurity, ‘progress’, and the assumption that our brain (the signifier here for biopolitical imperatives, institutions, medicine, technology, and neuroscience) will solve everything. These dementia novels offer such alternative narratives. Such a claim does not refute that dementia can be a painful experience; rather, it destabilises the problematic narrative of plastic enhancement by offering a different understanding of time and narrative, in much the same way that Jesse symbolically rights the wrongs of Eddie’s lawlessness and unethical nature in *The Code*.

---

society, rather ‘staking a claim for the continuing significance of care, family and friendship’. David MR Orr, ‘Dementia and detectives: Alzheimer’s disease in crime fiction’, *Dementia*, 28 May 2018, 1-14 (p.8), <<https://doi.org/10.1177/1471301218778398>> [accessed 18 June 2018]. I agree with this, but I offer an alternative ‘antidote’ against the neoliberal biopolitical structures surrounding and propagating the neuro-turn.

<sup>87</sup> See Dani Ellenby, ‘The Five: Genetic Fixes For the Climate Crisis’, *The Guardian*, 14 July 2019 <<https://www.theguardian.com/technology/2019/jul/14/the-five-genetic-fixes-for-the-climate-crisis>> [accessed 13 February 2020]; Anne Freier, ‘How CRISPR can Help Combat the Effects of Climate Change’, *Medium*, 16 August 2016 <[https://medium.com/@anne\\_f/how-crispr-can-help-combat-the-effects-of-climate-change-3478ea2ff27e](https://medium.com/@anne_f/how-crispr-can-help-combat-the-effects-of-climate-change-3478ea2ff27e)> [accessed 13 February 2020].

Burke notes that Malabou's conception of neural-damage breaks with psychoanalytic understandings of history.<sup>88</sup> Broken down in basic terms, Malabou's plasticity offers a dual ontology; on the one hand, formative plasticity is future looking and articulates the ability to harness latent neural potential. On the other hand, destructive plasticity, of which Alzheimer's is exemplary for Malabou, represents the breaking from the past through the formation of a new person/subject after the material destruction of a prior state of self. However, these dementia narratives do not fit into either of these categories. They show dementia to be oppositional to plastic narratives, but almost in a reparative, rather than subtractive way by repairing the ethical void endemic in *Limitless*. In other words, these characters living with dementia neither detangle from the past through a destructive plasticity nor strive toward an endlessly forming future; in fact, how narrative works in these texts is succinctly captured by Maud as being precisely non-plastic: 'time is so elastic now'.<sup>89</sup>

In *The New Wounded*, Malabou establishes her idea of destructive plasticity in opposition to Freud's 'elastic' formulation of the death drive. For Freud, life seeks to return to an inorganic state. There is a latent pressure, 'a kind of organic elasticity', which is the 'expression of the inertia inherent in organic life'.<sup>90</sup> However, Malabou notes that '*elasticity is the exact opposite of plasticity!*'.<sup>91</sup> Crucial for Malabou is the distinction between the formal properties of plastic and elastic; the former 'holds its form and cannot return to its initial state', while the latter 'does return to its initial

---

<sup>88</sup> Burke, 'Missing Pieces', p.91.

<sup>89</sup> Healey, p.24.

<sup>90</sup> Sigmund Freud, *Beyond the Pleasure Principle*, p.47.

<sup>91</sup> Malabou, *New Wounded*, p.177.

form and loses the memory of the deformations that it has undergone'.<sup>92</sup> Malabou is attempting to explain the irreversible material changes to personhood and subjectivity as a result of brain damage, what she refers to as 'destructive plasticity'; however, in addition to the ethical problems Burke examines, I do not find this a particularly useful or reflective framework of how dementia narratives unfold. In itself, Freud's elasticity is not particularly helpful either. However, when read alongside Brooks' formulation of the death drive in fictional narratives, Freud's elastic concept become more useful in analysing how neuroscience is translated and considered in fiction than Malabou's uncritical uptake of contemporary neuroscience as reflecting a new/different subject in the wake of cognitive change, something that is particularly dehumanising and damaging in relation to dementias.

This is where the tension between detective plotting and atypical cognition proves particularly enlightening. Brooks reads narrative and plotting through Freud's conception of the death drive. Like the death drive, the 'baseline of plot' in a text is 'the drive towards the end'.<sup>93</sup> Any deviations, repetitions, and subplots that forestall its arrival prevent 'short circuits', which is to say any (reader) dissatisfaction of an early or 'improper' ending.<sup>94</sup> These deviations and repetitions mirror the death drive's compulsion to repeat, which in a text 'can take us both backwards and forwards because these terms have become reversible: the end is a time before the beginning'.<sup>95</sup> Hence, Brooks' ultimate point is that 'the desire of the text is ultimately

---

<sup>92</sup> Ibid.

<sup>93</sup> Brooks, p.102. Franco Moretti similarly argues that in detective fiction 'the weight gravitates towards the ending'. Franco Moretti, *Signs Taken For Wonders*, trans. by Susan Fischer and others (London: Verso, 1988), p.148.

<sup>94</sup> Brooks. p.104.

<sup>95</sup> Ibid. p.109.

the desire for the end' and that recognising this marks 'the death of the reader in the text'.<sup>96</sup> To a certain extent, this drive towards the end *is* the *raison d'être* of crime fiction. With them, we read to read the ending. However, Brooks makes the point that this 'recognition [...] does not annul the middle which, in its oscillation between blindness and recognition [...] is the truth of the narrative'.<sup>97</sup> What I argue works along similar lines. If Freud's death drive is tied to elasticity – the return *to* – and if Brooks uses the death drive to argue that narrative is a return to an end that was *already* present at the beginning, the presence of dementia in *Elizabeth is Missing* almost literalises this concept. It is not just elasticity in the sense of returning to an inert state, of ending, it is elasticity in the sense of returning to the very beginning of the narrative. For instance, in *Elizabeth is Missing* the final sentence reads 'so I must do something. I must, because Elizabeth is missing', which takes the reader back to the book's title and to the beginning.<sup>98</sup>

I term these 'elastic narratives', which, as Malabou notes of the formal attributes of elastic and plastic, are the opposite of the 'plastic narrative' analysed in *Limitless*. They are, borrowing from Freud and Brooks, repetitive, reflexive, and inert in their circular nature and do, elastically, return to previous states. This is unlike *Limitless*, which constantly drives forward in *reformation*, unable to snap backwards because the metamorphosis retains its shape until it changes again. Perhaps the main point of departure from Brooks is in his argument that 'the reader experience[s] the fear – and excitement – of the improper end, which is symmetrical to – but far more

---

<sup>96</sup> Ibid. p.108.

<sup>97</sup> Ibid.

<sup>98</sup> Healey, p.274. See also the ending of Paul Cleave's dementia crime novel *Trust No One*: 'Madness Diary let me tell you how my life as a killer began . . .' which, like *Elizabeth is Missing*, acts more as beginning than a formal ending. Paul Cleave, *Trust No One* (London: Mulholland Books, 2017), p.349.



immediate and present than – the fear of endlessness’.<sup>99</sup> Brooks suggests that the imposition of ending allows the reader to reconsider the middle’s subplots and deviations; however, in *Elizabeth is Missing* there is a kind of ‘improper end’ and ‘endlessness’, as the elliptical nature does not return the reader to the middle, but to the beginning. They are necessarily ‘improper’ inasmuch as they do not have the expected ‘tock’ of crime fiction.<sup>100</sup> However, I argue that this is crucial to what the texts’ inclusion of dementias is trying to convey: that a different understanding of narrative is valid and not just a symptom of a neurological disease. Or, if it is to be understood as symptomatic, it forces the opposite consideration too: that plastic narratives are themselves a problematic symptom of the neuro-turn and its myriad investments in futurity, technology, and human advancement. I now look at how the elasticity of these novels helps identify that our typical view of dementias has become problematic, firstly in relation to their endings, and secondly through episodes of blacked-out memory.

#### Maud and Jennifer: No Sense of an Ending?

Crime fiction by its nature intends to make sense, *to make sensible* the crime established in the beginning; the culprit is announced and a narrative tock sounds.

Through a model of elasticity, these novels work differently, not as representative of

---

<sup>99</sup> Brooks, p.296.

<sup>100</sup> In *The Sense of an Ending* Frank Kermode writes, ‘the clock’s *tick-tock* I take to be a model of what we call a plot, an organization that humanizes time by giving it form; and the interval between *tock* and *tick* represents purely successive, disorganised time of the sort that we need to humanize [...] They have to defeat the tendency of the interval between *tick* and *tock* to empty itself; to maintain within that interval following *tick* a lively expectation of *tock*, and a sense that however remote *tock* may be, all that happens happens as if *tock* were certainly following’. Frank Kermode, *The Sense of an Ending: Studies in the Theory of Fiction*, (Oxford University Press, 2000), pp.45-6. Kermode’s analogy argues the organised nature of fictional plotting pre-supposes and demands an expectation of the end, the tick ‘a humble genesis’ the tock ‘a feeble apocalypse’ (p.45).

the Freudian idea of the death drive that marks the end of the novel, but rather as an endless looping, stretching into the past and returning back to the present like an elastic band.<sup>101</sup> Where for Malabou, the elastic band's ability to regain its initial shape is problematic – because, she argues, the brain *does* literally change with dementias – in a literary analysis of *Elizabeth is Missing* elasticity works perfectly. Maud explores potential 'crime' scenes, discovers clues, and even uncovers her sister's body, all the while repeatedly returning to the beginning having lost the memory of so doing.

Nearing the end of *Elizabeth is Missing*, Maud literally uncovers the mystery of her sister's historic disappearance in Elizabeth's garden. The novel has two parallel first-person narratives, one narrating Maud's present search for Elizabeth, one narrating Maud's historic search for her sister Sukey. Both, in their respective aims, are failures; however, as the past increasingly becomes present through the symptoms of her dementia, historic clues find an oxymoronic confused-clarity as her present search for Elizabeth leads her to Sukey's body. The two narratives sometimes intertwine. For instance, when searching Elizabeth's house for clues she hides in the larder having heard removal men. This act of hiding mirrors that which she did as a child, and the present narrative elastically gives way to the historic one. The present narrative details: 'it's a familiar position. I used to hide in our larder when I was a child' which then cuts to the historic past-tense narrative explaining 'ours was in a corner of the kitchen'.<sup>102</sup> During this she remembers Douglas searching through

---

<sup>101</sup> Malabou uses the same elastic band metaphor as being antithetical to plasticity. Malabou, *The New Wounded*, p.178.

<sup>102</sup> Healey, p.113.

Sukey's suitcase, which, to follow Brooks' articulation of the narrative short-circuit, is a red herring designed to forestall revelation.

This ongoing historic/present interaction culminates in the confused-clarity Maud achieves later, shortly after Elizabeth's son Peter reveals why Elizabeth is in a stroke unit. Speaking in the hospital unit Elizabeth is in, he tells her: 'it was digging in the garden that got her into this state [...] You were digging, in the garden. Do you remember?', to which Maud replies: 'no [...] I wouldn't dig there. You never know what's buried under the ground by those new houses'.<sup>103</sup> The narrative then shifts to the past and when the present narrative returns Maud is in the car with Helen, having already forgotten that she has just seen Elizabeth. However, this forgetfulness is crucial to finding Sukey:

'Elizabeth is missing.'

'Mum, we've just been to see her.'

'She's missing and it's my fault.'

[...] 'It is my fault because I looked in the wrong places, I collected rubbish from everywhere else, and all the time the real things were lying out there, waiting for me.'

'What are you on about?'

'She was buried in the garden.'

'Who was?'<sup>104</sup>

There are two things of note here. First, telling Maud that digging in the garden caused the stroke reminds the reader of the prologue in which Maud is talking to Elizabeth whilst digging in the garden 'just looking for something'.<sup>105</sup> Second, the

---

<sup>103</sup> Ibid. p.253.

<sup>104</sup> Ibid. p.258.

<sup>105</sup> Ibid. p.1. It goes beyond the scope of this thesis; however, it is striking that the AI hosts (the technological and teleological aspiration of certain aspects of the neuro-turn) in *Westworld* (Nolan, 2016-present) see similar narrative patterns. Once they complete their pre-written narratives, they re-start from the beginning. However, the protagonists living with dementias write much of their own plot in these novels, an agential distinction to the AI hosts in *Westworld*.

memory shuffles the clues in her mind into a new expression, finally allowing Helen to understand Sukey is buried in the garden. Sukey's remains are found, marking the end of the historic mystery and the suggestion is that the police will re-question Sukey's partner Frank. This offers the reader a 'proper' resolution in agreement with Brooks' Freudian reading of narrative. However, the novel's actual ending comes in the form of a subsequent epilogue that has the effect of indefinitely delaying the arrival of the narrative tock. Here, the circular pattern previously experienced when the reader is reminded of the prologue after Peter tells Maud that it was her digging that caused Elizabeth's stroke, becomes absolute. Indeed, that the novel ends with a call to action, 'I must, because Elizabeth is missing', and with the prologue detailing the moment when Elizabeth has a stroke in her garden, the narrative's elastic looping is undeniable.

This circular ending initially reads tragically in a genre in which the wrapping up of narrative ends is paramount. However, there are different readings available such as David Orr's more literal interpretation that Maud's final 'Elizabeth is missing' can be read as a statement of fact. She is missing because she is now dead, a much more Freudian reading in line with Brooks.<sup>106</sup> This is certainly true, however as Falcus and Sako argue 'the mystery plot around the disappearance of Elizabeth also refuses the conclusive endings that is traditionally expected in the genre' which creates a 'repetitive circularity' resistant 'to the linear decline narrative attached to dementia'.<sup>107</sup> I agree completely, and respond to and extend their argument below by considering how this circularity informs the reader about the limitations of

---

<sup>106</sup> Orr, 'Dementia and detectives: Alzheimer's disease in crime fiction'.

<sup>107</sup> Falcus and Sako, *Contemporary narratives of Dementia*, p.132.

'typical' cognition, plotting and narratives. Yet, what must be realised is that it is Maud, not the reader, who does not get a narrative 'tock' because she keeps forgetting. Particularly true in detective narratives, fiction's appeal is that it allows the experience of narrative endings which are phenomenologically unavailable in real life: our life stories end in a death we cannot truly experience in the way that we can experience the death/ending of a novel. Yet, problematising Maud's own sense of an ending makes for a different readerly response; because her narrative lacks the realisation of conclusion, experiencing it as a reader is indeed unsettling, but Brooks himself offers a different way of reading the elliptical ending:

The desire of the text is ultimately the desire for the end, for that recognition which is the moment of the death of the reader in the text. Yet recognition cannot abolish textuality, does not annul the middle which, in its oscillation between blindness and recognition, between origin and endings, is the truth of the narrative text.<sup>108</sup>

Maud's narrative is precisely this 'oscillation between blindness and recognition, between origin and endings'. That the reader gets a 'tock' but Maud does not is a reworking of generic convention; her oscillation does not come to a full stop, but continues elastically. By going back to the beginning, and oscillating in the middle, it becomes clear that Maud's perspective is sometimes tragic and suffocating because it goes against expected narrative convention. Reading the novel is emotionally draining not because dementia causes Maud to forget, which is the literary conceit of the book, but because she repeats. The adage goes that insanity is repeating the same task and expecting a different result, and if we find this dementia narrative uncomfortable, it is because it *is* a representation of atypicality, of a type of narrative

---

<sup>108</sup> Brooks, p.108.

different to our own. However, Maud proves herself to be far from senile. In fact, through metaphor Maud herself rejects the limiting model of destructive plasticity while talking to her granddaughter Katy: 'a wet lump of tissues folds itself on the table. It looks like that Plasticine stuff the children used to play with [...] She pushes the lump of Plasticine into the spill [...] Brown seeps into the white like a sugar cube held on the surface of a cup of tea'.<sup>109</sup> The work this novel does falls between the plastic and the elastic; Maud rejects a model of her brain that is a biopolitically informed gaze of deterioration, preferring to forge her own atypical, agential, elliptical narrative. Repetition becomes Maud's primary mode of subjectivity, which may be different, but should be acknowledged as perfectly viable and therefore accommodated.

*Turn of Mind* does not have the same overtly elliptical ending, in fact it carries a superficial sense of closure absent from *Elizabeth is Missing*. Jennifer, now held in a much more secure facility, and having lost the phenomenological happiness she experiences during her escape, explains that 'accepting what you have done. Accepting the visions. Waiting it out in their company. In the end, that is enough'.<sup>110</sup> That this statement looks and points towards an end is clear to read, there is none of the instinctive, propelling, agency of Maud's final words, which being the words of the novel's title create an elliptical repetition. Despite this, the elasticity of Jennifer's narrative ending is evident through the use of present participle. She has not

---

<sup>109</sup> Healey, pp.210-11.

<sup>110</sup> LaPlante, p.305.

‘accepted’ the past in a religious sense of looking towards death but is still ‘waiting’ with her visions of the past. In many respects the book echoes Brooks’ argument:

If at the end of a narrative we can suspend time in a moment where past and present hold together in a metaphor – which may be the very recognition which, said Aristotle, every good plot should bring – that moment does not abolish the movement, the slidings, the errors, and partial recognitions of the middle.<sup>111</sup>

Here, past and present are held together for Jennifer and the reader through her visions. However, they do not provide the dead-stop expected by Brooks as the anticipation of ending is tempered by Jennifer explaining ‘each day slower than the one before it’.<sup>112</sup> Indeed, the gothic imagery of the final few pages, ‘terrible tableaux’, ‘the dark joy’, ‘horror’, ‘rattling her keys’, inverses the classical detective model inasmuch as it refuses to settle the ghosts – ‘the slidings, the errors’ Brooks identifies – of the beginning and middle by bringing them back in the final pages as visions.<sup>113</sup> Though at first glance ‘accepting what you have done’ is a near-stereotypical example of narrative recognition, the reader is unable to recognise or understand precisely what she is accepting. The reason this ending is elastic rather than plastic or aligned with the death drive is because the recognition/anagnorisis Brooks reaffirms as being crucial to a satisfying end does not occur, precisely because the reader realises it does not need to. Unlike Eddie, who parades his unethical characterisation to the extent that the possibility of anagnorisis cannot occur and with it no possibility of a suspension of time and plotting, the reader learns that Jennifer is innocent and, not

---

<sup>111</sup> Brooks, p.92.

<sup>112</sup> LaPlante, p.305.

<sup>113</sup> Ibid. p.304-5.

needing a *mea culpa*, should be able to find a satisfying ending, except for the fact that she is incarcerated.

The novel's detective element is atypical here because plotting remains ambiguous. Jennifer admits earlier in the novel that her 'plots are simple: walk to the door. Wait until no one is looking [...]' mirroring the simple directions of Maud's notes.<sup>114</sup> However the plotting of the novel is far from simple. Jennifer is neither chronicler nor detective and meaning making is a private affair. Where Maud's literal uncovering of the past is public (both in the novel and for the reader), Jennifer's encounters with the past at the novel's narrative close are private and ongoing. With no satisfying narrative recognition, with no arrival at the readerly death-drive, the reader leaves Jennifer institutionalised and continuing to repeat through the visions; indeed, it seems her fellow inmates are similarly used to this elastic-stasis. They complain: '*nurse, she's doing it again*', which is reminiscent not only of Maud's repetitive actions in *Elizabeth is Missing*, but Jennifer's own account earlier in the novel.<sup>115</sup> The beginning of Part Two foreshadows the ending (which in turn elastically reflects backwards to it), when Jennifer details that 'the unknown woman with no neck is screaming again'.<sup>116</sup> Here, Jennifer is the listener rather than the screamer as at the end, but the elasticity of the narrative forces the two instances into conjunction, particularly given that the Jennifer of Part Two notes: 'this has happened before, this descent from one circle of hell into the next. How many times?

---

<sup>114</sup> Ibid. p.187.

<sup>115</sup> Ibid. p.305.

<sup>116</sup> Ibid. p.143.



The days have morphed into decades in this place'.<sup>117</sup> Such instances act as both foreshadowing and repetition, rendering Jennifer's narrative elastic.

Adding to the elastic structure, these final visions are pre-empted in Part Two. Jennifer describes a 'vision' of her mother that is 'much more vivid than anything [her] present life', a calmness washes over her, stating: 'as if she held my future in her girlish hands and that the smile on her face was an assurance that my story would have a happy ending after all'.<sup>118</sup> Again earlier in Part One, Jennifer describes a vision of Amanda emerging from the shadows followed by numerous others to the extent that 'the room is full of faces' she recognises.<sup>119</sup> These elastic visions, however, immediately give way to a return to a narrative presence that mirrors Jennifer's situation at the end of the novel: 'How long have I been incarcerated? [...] I hug my body for warmth. If I lie here, still, I will be safe. If I revel in my chains I will be free'.<sup>120</sup> The chains here are metaphorical chains that anchor Jennifer elastically into her past like elastic bands. Thus, that the novel ends: 'accepting the visions. Waiting it out in their company. In the end, that is enough', is a reference to these previous instances in the novel, which allow her a kind of cognitive freedom away from her present reality of incarceration.

The 'clue' to how to read the end of this elastic novel is already embedded within the narrative middle: like Maud, the reader has to read and move elastically in order to realise that neuro-atypicality demands and requires not a reconsideration

---

<sup>117</sup> Ibid.

<sup>118</sup> Ibid. p.204.

<sup>119</sup> Ibid. p.95.

<sup>120</sup> Ibid. pp. 95-96.

of subjectivity and personhood but a different form of temporal narrative.<sup>121</sup> The reader knows that Jennifer does not have a happy ending; however given that in this earlier vision her mother *does* give her *story* a ‘happy ending after all’, the elasticity of the returned visions offers an alternative reading to this tragic ending. Her mother has returned to pacify, to close the narrative in an atypical sense of returning to an earlier part of the narrative, much as how Jennifer herself is able to gift her daughter ‘a happy ending after all’ by taking the blame.

### Cut to Black?

In my reading of *Limitless* I argued that blackouts represent voids in ethical responsibility. Blackouts are a bi-effect of the drug Eddie takes, but are manageable, as he explains with his flippant trademark brevity: ‘if I maintained an even dose, remembered to eat, drank no alcohol, the blackouts didn’t recur’.<sup>122</sup> This is not so with dementia narratives where memory gaps and blackouts are unpredictable and work in a different way to the plastic narrative of *Limitless*. Where fading in and out of linear narrative acts to conceal truth, justice, morality, and ethical responsibility for Eddie, this effect in many respects illuminates truth in *Elizabeth is Missing*, both for Maud as a sleuth, and the reader as engaging in a dementia detective narrative. I

---

<sup>121</sup> This is something that recent fictional depictions of people living with dementia articulates. For instance, in an episode titled ‘The Queen’ in the television series *Castle Rock* (Shaw, 2018-present), Ruth, a woman living with dementia, uses chess pieces to ‘anchor’ herself back into the present. Ruth’s narrative bleeds elastically into past and present but both she and the viewer are directed/orientated by the presence of chess pieces, which remind that it is the present, and act like Maud’s notes. However, the symbolism of the chess piece is paramount. For one, this use acts differently to how chess/strategy games have long been touted as methods to prevent dementia. Secondly, chess pieces are ordinarily regimented and confined to strict direction on a board, echoing the lines of direction that try to order Jennifer in the facility. However, Ruth takes them outside the confines of the board, into pockets (as with Maud’s notes), and spaces around the house, and through this, like Maud and Jennifer, Ruth is able to navigate an atypical narrative with subjective agency.

<sup>122</sup> *Limitless* (Berger, 2011).

consider above how crucial the dual narrative of the present search for Elizabeth and the historic search for Sukey is in making this text a satisfying detective novel. I have argued the elasticity of the novel means it is a crime novel that is not primarily invested in the gratification of a delayed and resolved end. Rather, the continuous repetition of Maud's actions, and her determined belief that Elizabeth is missing suggests this is a crime novel concerned with challenging the biopolitical limitations of a diagnosis of dementia through her continued subjective agency. Further, I have maintained that these challenges highlight the limitations of the plastic narratives circulating today, through its refusal to drive continually forward, and its determination to have meaning-making a revelatory conversation with the past, not a speculative future.

I want to argue here that where *Limitless* uses imagery to convey blackouts as plastic, propelling (unethically) towards a never-end, *Elizabeth is Missing* uses images to more tacitly argue for the epistemological value of the elastic narrative. A simple black and white sketch (see figs. 46, 47, 48) heads each chapter, relating to some historic 'clue' or associative object resonating with present Maud. These often have the effect of a temporal 'blackout' from the present as the historic narrative temporarily takes hold. Crucial to their elastic properties is the fact that these images play the same role for the reader. In other words, an image may be proleptic of later textual references to that which they signify (e.g. 'lipstick'), or they may work analeptically, as images referring to previous textual mentions of that which they signify.

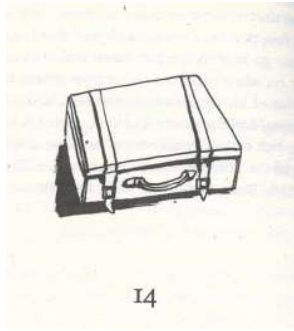


Figure 46

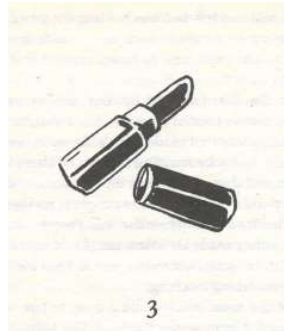


Figure 47



Figure 48

For example, a picture of a suitcase (fig. 46) heads chapter fourteen, reminding the reader of the multiple previous times suitcases are textually mentioned in both present and past narratives. For example, in the historic narrative Maud recalls how somebody had seen ‘Frank leaving with a suitcase’, and later, a policeman during a conversation with her father says: ‘you said something about him having a suitcase’, suggesting the possibility that Sukey had run away.<sup>123</sup> Later still, present Maud walks to the Oxfam where she used to volunteer, and the smell of old clothes brings the historic narrative to the fore: ‘it’s the smell from the suitcase I remember most. Dad was the one who brought it home, nearly three months after Sukey disappeared’.<sup>124</sup> When this brief historic interlude ends, Maud emerges back in the present explaining ‘I’m halfway along Elizabeth’s road before I know where I’m going’.<sup>125</sup> The implication is that Maud had blacked-out due to the memories elicited from the suitcase and re-finds herself presently at Elizabeth’s (where Sukey is buried). She sees children and half-expects to see a ‘brown leather suitcase with a brown leather handle’.<sup>126</sup> There are various other mentions of the suitcase, primarily in the historic narrative, so that

---

<sup>123</sup> Healey, p.56; p.79.

<sup>124</sup> *Ibid.* p.93.

<sup>125</sup> *Ibid.* p.95.

<sup>126</sup> *Ibid.*

by the time we see the image of the suitcase, the reader of detective fiction is subconsciously primed to recognise it as significant; indeed, in this chapter past bleeds into the present much more vividly. In the present, Helen is packing up Maud's belongings ready for Maud to move in with her, and Maud notes: 'she closes a suitcase and snaps the clasps shut. The noise, the sharp secret-breaking noise, makes me think of another case [...] 'We got her case back,' I say to Helen'.<sup>127</sup> Here, the present suitcase's lock mechanism makes a 'secret-breaking' noise and reminds Maud of another 'case'. 'Case' has two meanings, first the present and past suitcase, but also 'case' in the sense of detection – the other 'case', not missing Elizabeth, but missing Sukey. Moreover, this 'secret-breaking noise' is the mechanism that decodes the prologue's description of 'an ancient noise, like a fox bar, makes an attempt at the edges of my brain. 'Elizabeth?' I ask. 'Did you ever grow marrows?'.<sup>128</sup> Images elastically evoking memories of 'clues' already read in the text create a ludic quality for the reader, who like Maud, find themselves mentally toing-and-froing within the narrative.

Chapter Three is headed by an image of a lipstick (fig. 47), and both past and present narratives continually refer to lipstick, marking it a significant 'clue' type item as is typical of the genre. Maud remembers having bought Sukey a decorative comb from Woolworth's, and how Sukey kissed her in thanks leaving lipstick on her forehead. This is echoed later in the novel when Maud recounts the story of the gift in the present to Helen. Moreover, as mentioned above, both past and present Maud collect bits of 'rubbish' in the hope that they may help solve the mysteries, and in the

---

<sup>127</sup> Ibid. p.183.

<sup>128</sup> Ibid. p.2.

historic narrative we learn that Maud's mother derided this practice. "Maud, you have to stop bringing this stuff home with you.' She waved an old Coty lipstick lid around in her hand'.<sup>129</sup> We see that these textual objects, which Maud gathers as clues, mirror the use of the chapter images for the reader: these become narrative clues for the reader to latch onto in the manner of classic detective fiction.<sup>130</sup> Chapters are headed with pictures of the same clues Maud gathers. For instance, that the lipstick is given such significance reminds the reader of the makeup compact that is crucial to solving the 'case'. A compact (fig. 48) is the image that heads the prologue of the novel where we first meet Maud digging in Elizabeth's garden prior to Elizabeth's stroke, she says 'I clutch at the compact lid in my hand [...] I've missed this tiny thing for nearly seventy years'.<sup>131</sup> This replaces the formalist need to have both *fabula* and *syuzhet*, which are missing from this novel given Maud's narrative is an instinctual series of events without conjunctive plotting. This is to say that the reader makes the associations that elude Maud through the evocative elasticity playing between image and text, object and provenance, story and plot, in what Burke refers to as an 'extra-textual prosthetic memory'.<sup>132</sup> The very elasticity of how these significations work, weaving back and forth in blacked-out time, but within the overarching elastic elliptical narrative proper, makes for a different kind of mystery. The elasticity of Maud's memory allows her to find Sukey's body, and likewise, the constant elasticity of the narrative forces the reader to consider this detective plotting differently. In short, the properties of crime fiction do not just work to

---

<sup>129</sup> Ibid. p.151.

<sup>130</sup> See Hühn, p.455.

<sup>131</sup> Healey, p.2.

<sup>132</sup> Burke, 'Missing Pieces', p.99.

retranslate the medical gaze of dementia into a new ontology of difference, but in translating, the effects of Maud's cognitive decline force a different experience of crime narrative itself.

In *Turn of Mind*, much as Jennifer's 'final' visions are anticipated in the text, so too are her blackouts, as she explains in Part One: 'it started a while ago. I noticed I was forgetting things. [...] Then these gaps. One minute I'd be in my office, the next in the Jewel frozen foods section with no recollection of how I'd got there'.<sup>133</sup> Where I argue that Maud's present tense blackouts allow the historic narrative to come to the fore and create work and meaning-making at the level of plotting for the reader to solve, *Turn of Mind* devotes an entire section to the phenomenological experience of blackouts. Part Three begins just after Jennifer escapes the facility, and, as mentioned above, crucially employs the second person 'you' to disassociate from the suspicion and prejudice of an 'I' subjectivity subsumed by the negative connotations of her dementia. As the above quotation shows, Jennifer would find herself instantly in a different setting with no memory of it happening. In this section, Jennifer goes from street, to bar, to park, to hospital, with only present experience and instinctive memory propelling her, in a similar way to the function Maud's notes provide. The part is broken up by diamond symbols and each new section begins with a present tense statement: 'you have been walking for miles', 'you wake up with a start', 'you are awakened by a crack of thunder', 'you are examining a five-year-old', 'you're in the front seat'.<sup>134</sup> As mentioned, this second-person is different to Maud's first-person present, which, for Burke, is 'the most significant ethical component' of the

---

<sup>133</sup> LaPlante, p.135.

<sup>134</sup> Ibid. p.239; p.255; p.267; p.274; p.276.

novel through the work it does in establishing a relational ethics between the reader and Maud.<sup>135</sup> I agree in relation to *Elizabeth is Missing*, but in this novel it is the second person 'you' rather than the 'I' that performs a similar relational function. There is a dreamlike mix of present continuous, 'you are examining' and present perfect continuous 'you have been walking' that elides any temporal precision. In other words, the reader emerges and submerges into the present with Jennifer, and the section has a floating, kite-like quality in which Jennifer and the reader travel both geographically and temporally back and forth through her city, day, and life.<sup>136</sup>

Traversing these blackouts with Jennifer, the reader appreciates a different kind of experience. We float too, enjoying the elasticity of the present, often only latterly grasping her associative leaps. In this section the reader is encouraged, like Jennifer, to let go of complex plotting, and to enjoy the experience of presence. This becomes clear in the instances where the reader is brought back to materiality with her, such as when previous optimistic confusion – 'when did day turn to night? The heat into deliciousness?' – is 'jolted back into a more solid world'.<sup>137</sup> Key to this section is recognising the difference between the objectivity of the neuromolecular gaze and subjective experience as explored in the introduction. However, there is more going on than this too. Much as Maud's blackouts challenge the problems of the plastic narrative of *Limitless* through the subjective circular narrative established in simultaneously solving the disappearance, forgetting having done so, and

---

<sup>135</sup> Burke, 'Missing Pieces', p.98.

<sup>136</sup> Compare this freedom to the terror and panic Maud experiences when being cut loose from the lack of notes in her pockets. What the differences in these two novels highlight is precisely the symptomatic difference that exists within 'dementia' as a diagnostic or epistemological umbrella label.

<sup>137</sup> LaPlante, p.252; p.278.



repeating the process, Jennifer strikes up a conversation in a bar that highlights and critiques the difference between elasticity and plasticity. A young man tells Jennifer:

*If I were really thirty-five, I'd want to slit my wrists [...] I mean, if I were thirty-five and were in the position I am now. Stupid job. Not getting on with anything. Not having written my novel. Things like that. [...] No. That's the point. Here I am, still in my twenties, so I have an excuse. But at thirty-five you don't have any more. Excuses I mean.*<sup>138</sup>

The links to Eddie's initial situation in *Limitless* are clear. Eddie is lazy, mid-thirties, and unable to write his novel.<sup>139</sup> This quotation conveys the same pathetically comic quality of pre-NZT Eddie. The young man is eager to get to the next expected step but cannot be bothered to build the bridge, perfectly echoing Eddie's rationale for taking the pill. This puncture of rapid-pace futurity, of the yearning for a plastic narrative in an otherwise elastic section, highlights how disappointing a strictly forward-looking perspective can be, and how artificial and hollow it is; to do it because of expectation, to be ordered and directed in a straight line are the very thing Jennifer escapes in leaving the facility. This elastic reading is not a call to indolence or listlessness, but to realise, especially given the backdrop of the criminal investigation looming over Jennifer's present, the validity and use of slowing down, of breathing in the present. Here, the juxtaposition of Jennifer and this proto-Eddie interrogates not the societal position of dementias, but rather neuro-typicality, especially if it is aligned with the pursuit of a phantom neoliberal enhanced ideal. Seeing dementia narratives in this way, not as some form of biopolitical shame or cultural fear, but as a unique mode of perception, one that, for all its challenges and pains highlights everyday beauty is essential – such as Jennifer informing us that 'You

---

<sup>138</sup> Ibid. p.249. Original italics.

<sup>139</sup> Eddie married Melissa straight after college, and it had been nine years since he last saw his brother-in-law. By regular educational standards he is likely mid-thirties.

have not lived until you have seen fish striving for the moon [...] The perfect shining arc as they peak' – that is so readily lost in typical, plastic, workaday cognition.<sup>140</sup>

Where Maud's dementia perspective allows her and the reader, through the novel's elastic narrative, to solve the mystery, Jennifer's is more philosophical. Jennifer does not need to solve the case inasmuch as she needs to keep the secret in order to protect her daughter. The truth – that her daughter killed Amanda to stop their family secrets from emerging – is revealed at the end, but only to the reader and not to the authorities in the story. Like the elastic qualities of each of these novels, this is foreshadowed earlier in the narrative. When discussing her past with her son, Jennifer states, 'some things shouldn't be scrutinised too closely. Some mysteries are only rendered not solved'.<sup>141</sup> This garners new significance in the realisation that she is protecting the truth to protect her daughter. In addition, given the amount of neurological language in the text, this might also be read as a criticism of the strictly pathological models of neural implantation. The intense scrutiny of the atypical brain today is, as mentioned throughout this thesis, problematic. Jennifer is first and foremost a medical doctor; however, the text also stresses her religious, philosophical, and historical research interests. It does not seem a stretch to suggest certain mysteries or potentials of the brain, often heralded as a scientific 'final frontier' do not need to be intensively scrutinised or solved either.<sup>142</sup> Thus, *Turn of*

---

<sup>140</sup> LaPlante, p.252.

<sup>141</sup> Ibid. p.198.

<sup>142</sup> See, Fred Mendelsohn, 'Understanding the brain and mind: science's final frontier?', *The Conversation*, 4 October 2013, <<http://theconversation.com/understanding-the-brain-and-mind-sciences-final-frontier-18331>> [accessed 26 October 2018]; Joel Frohlich, 'Consciousness: The Final Frontier', *Psychology Today*, 16 April 2018, <<https://www.psychologytoday.com/gb/blog/consciousness-self-organization-and-neuroscience/201804/consciousness-the-final-frontier>> [accessed 26 October 2018].

*Mind* is a crime novel in which the significance of the elastic narrative and blackouts prove themselves to be an indictment of the 'detective' scrutiny places on the dementia brain. The mystery becomes not what happened to Amanda, but why Jennifer's dementia is treated with an almost abject suspicion from the beginning.

\*

This chapter began with a critique of the near-totalising pathological model and understanding of dementia in contemporary society and culture and explained that in a society that privileges plastic potentiality, dementia represents its antithesis: inertia or degradation. It considers popular accounts and narratives of dementia subjects and suggests that these are often framed as figures of fear that create a phantom implantation that drives the need to try to protect the self from a future implantation of dementia. Having established the dominant ways in which dementia is represented, I go on to look at how the formal properties of detective and mystery fiction can be put to work to frustrate these pathologically grounded implantations.

Utilising Peter Brooks' Freudian reading of plotting which argues that narrative fiction inherently drives towards the ending – 'reading for the plot' – I argue that something unique occurs in some recent neuro-crime fiction that focusses on dementia. Both *Elizabeth is Missing* and *Turn of Mind* have plots that read against the expectation Brooks' identifies. Rather, these employ elliptical, repetitive narratives which, in refusing to come to an end, symbolically eschew the biopolitical narratives underpinning how we understand dementia in society and culture – as representing declination, degradation, and death. This should be read not just as a criticism of dementia implantations that are framed solely pathologically in favour of

reclamations of subjective atypical experience. This reading of cognitive difference can be a lesson for 'typical' narratives that prioritise only futurity. Reading neural implantations of dementia and this subjective lesson teaches us much about the damaging limitations that normative mode of lived experiences produce and perpetuate.

## Conclusion: Neural Implantations Today and Tomorrow

This thesis has considered the effects of the neuro-turn in contemporary society and culture. It began with three key research topics, the first of which sought to ascertain and understand the meaning and biopolitical underpinnings of the neuro-turn. Research from Littlefield and Johnson, Rose and Abi-Rached, Malabou, and Vidal and Ortega enabled me to recognise that there are multiple ways of understanding neuroscience's interaction with contemporary culture. For Littlefield and Johnson the 'neuroscientific turn' is an academic phenomenon; they understand it as the ways in which neuroscience translates into the arts and humanities, and the kinds of epistemological effects this produces.<sup>1</sup> For Rose and Abi-Rached, and building on what Rose has previously termed the 'neurochemical self', the neuro and the 'new brain sciences' reflect the flattening of psychological depth models of the mind in favour of neurological and surface readings of the brain.<sup>2</sup> They take a sociological approach to understand how the brain is governed in contemporary society, and the effects such governmentality have at both biopolitical and individual levels. Malabou's philosophical reading of neuroplasticity focusses more on the subjective changes and opportunities the neuro-turn affords.<sup>3</sup> She sees a potential in plasticity's metamorphic quality to free ourselves from the cognitive trappings of late capitalism. However, I have argued throughout this thesis that such a model ultimately subsumes into the very neoliberalisation her philosophy is attempting to escape, and

---

<sup>1</sup> Littlefield and Johnson, 'Introduction' in *The Neuroscientific Turn*, p.3.

<sup>2</sup> Rose, *The Politics of Life Itself*, p.187; Rose and Abi-Rached, *Neuro*, p.3.

<sup>3</sup> Malabou, *What Should We Do With Our Brains*, p.79.

I criticise her problematic reading that Alzheimer's can represent a reduction in personhood.

Similarly, Vidal and Ortega are interested in what they term the 'cerebral subject', which they understand as a historical construction based upon the longstanding belief that 'we are our brains'.<sup>4</sup> For them, neuroscience as a discipline must first be understood as a product of this pre-existing belief, rather than neuroscience necessarily 'producing' the cerebral subject, it validates existing thought. I made a critical intervention in their research by maintaining the specificity of the neuro-turn's biopolitical underpinnings. I delineated the beginning of the neuro-turn as occurring post-1990, with the specific technological, economic, and political shifts of this period being crucial to understanding how neuro-models produce meaning in society and culture. Coupled with this, research from literary studies such as Salisbury's work on Ian McEwan and Sebastian Faulks, or Vidal and Ortega's chapter 'Brains of Screen' encouraged me to consider how fiction and narrative more generally similarly understand the neuro-turn.<sup>5</sup> I extended such existing literary criticism by contributing a history of how specifically crime fiction has developed alongside biopolitics and how new sub-genres have emerged in reaction to the turn to material models and explanations. I have shown throughout this thesis that the neuro-turn is a wide-reaching phenomenon, entwined among others with medicine, technology, the law, philosophy, politics, and culture, and refers to the ways in which neuroscientific models come to influence these areas to form new ways of knowing or being. However, I found that the central concern surrounding the

---

<sup>4</sup> Vidal and Ortega, *Being Brains*.

<sup>5</sup> Salisbury, 'Translating Neuroscience'; Vidal and Ortega, 'Brains on Screen' in *Being Brains*.

neuro-turn was the new medical identities and subjectivities it produces as a result of its preoccupation with pathologizing and medicalising the brain and its processes.

Stemming from this, my second research area sought to identify the impact the neuro-turn has upon those who have or experience cognitive difference, and the kinds of ontological changes these produce. I took inspiration from what Rose and Abi-Rached term the 'lessons from lesions' approach, Davis's work on the construction of the norm, and Foucault's biopolitical theorisation of the 'perverse implantation' to construct a framework through which to tackle this question.<sup>6</sup> I developed the concept of the neural implantation as a neurological extension of Foucault's description of the emergence of new power/knowledge in the nineteenth century resulting in the widespread discourse, anxiety, and medicalised classifications of 'perversions' such as homosexuality, criminality, and hysteria. This 'perverse implantation' produced the homosexual, criminal, and hysterical woman as ontological and subjective figures. I detailed four central elements of the neural implantation, in order to map the production and effects of categorisations of difference in society and culture today.

First, I argued that implantations are founded on neuromolecular models and diagnoses that have proliferated since the end of the twentieth century. Dementias, particularly Alzheimer's, autism, ADHD, OCD, schizophrenia, epilepsy, conduct disorder, depression, anxiety, and eating disorders dominate much of how we think about identity formation, subjectivity, and personhood today. Second, I

---

<sup>6</sup> Rose and Abi-Rached, *Neuro*, p.206; Davis, 'Normality, Power, and Culture'; Foucault, *The History of Sexuality Volume 1*.

demonstrated how anxiety of, and interest in, such diagnoses sees cognitive difference become castigated, appropriated, and heralded increasingly in equal measure in what I described as neural accessories that can be worn or discarded by those considered cognitively normal without any real subjective or ontological change. However, these accessories exacerbate prejudice and stereotypes for those who truly do have diagnoses representing particular cognitive and brain differences. Such stereotypes find renewed expression alongside the neuropathological models in what I term 'phantoms of the brain'. These phantoms can range from Old Wives' Tales, superstition, outdated psychological paradigms, and, to borrow from Murray, cultural 'events' like *Rain Man*, that combine with the perceived objective legitimacy of medical models to produce a range of often damaging effects. An example of this is the association of 'mental illness', and a range of neural implantations therein, with criminality or a reduction in personhood, which leads to the emergence of the (autistic) lone shooter, or of dementia as representing a tragic and continual loss of selfhood.

Third, I showed how the neural implantation recognises the precarity of personhood and subjective changes resulting from diagnoses. As considered in chapter one through *Limitless* and *Nexus*, narratives imagining futures of cognitive enhancement fall between neoliberal hubris and post-human hierarchical structures that fail in their utopian hopes of empathy and parity. This is not to suggest that enhancement is automatically ethically problematic, but that enhancements zealously following a 'progress' narrative must be scrutinised, particularly if 'normal' cognition is a focal point of future enhancements. Chapter two considered how the identity of 'autism' and the subjectivities of those implanted with autism have seen



rapid change in the last decade as cultural representation has flourished. Biological models underscoring natural difference – neurodiversity – are coming to replace narratives and discourses seeking treatments or cures, and cultural figurations such as the autistic hacker provide vehicles to counter phantom narratives of dependence, anti-sociality, and lack of empathy. On the other hand, autism has become used, particularly in the media, as a clumsy and hollow rationale for some of America’s most notorious mass shootings. Clearly, implantations of autism still occupy heavily prejudicial spaces, but as chapter two argued, fictional narratives can provide alternative understandings that recognise cognitively different subjectivities. Chapter three acknowledged that autism’s cultural movement towards difference models has not extended to dementia diseases. The chapter began with the truism that today dementias remain predominantly a medical pathology to be fought and combatted: dementia ‘sufferers’ as they are imagined have a pathologized life-narrative. At a cultural level this manifests itself through fear and a notion of dementia as a horrifying state that produces changes to subjectivity alongside a range of biopolitical imperatives that seek to understand it as an economic problem to be battled. These actual or phantom implantations of dementia create such anxiety and are thought to cause such substantive ontological effects that they rarely leave debates around personhood and euthanasia.

Fourth, I argued that the neural implantation highlights the importance of recognising the biopolitical and ideological imperatives underpinning diagnoses or recognitions of cognitive difference. In the introduction I note how the putatively objective methods of diagnosis and neuroscience in fact enmesh with cultural scripts such as race and gender. This is particularly true for cognitive difference, as, despite the

rise of neuro-materiality in explaining the locus of the difference, tests largely remain observational and based on behaviour (e.g. a child's erratic behaviour, or an adult's failing memory). In regard to autism, Jeffrey Weeks' criticism of neoliberal inclusion with reference to atypical sexualities facilitates an understanding of how and why certain cognitive differences have become more readily assimilated into society and culture. I argued that in seeming to have a productive economic worth, the autistic hacker aligns with the kinds of inclusion neoliberalism has shown itself to be cognition-blind towards. However, I counterposed this through my readings of Jesse and Salander who are both ethically opposed to neoliberalism and counter normative logic through their hacking abilities.

The third research area looked at the impact these epistemologies and ontological changes effect in cultural representation. This thesis focussed on crime fiction because the development of the genre coincides with the shifts in biopolitical imperatives and technological advancements that underpin contemporary neuroscience. Because of this, I articulated an emerging subgenre, 'neuro-crime fiction', referring to texts in which an aspect of the neuro-turn, be it technology or cognitive difference, is central to plotting. Thus, I argued that these are uniquely suited to exploring the ethical and legal ramifications, and the ontological effects, of contemporary medicine and neuroscience.<sup>7</sup> I took this shared epistemological development as my critical starting point in producing novel readings of a variety of narratives that fit broadly into the category of crime fiction.

---

<sup>7</sup> Weeks, 'Neuro-Crime Fiction'.

For instance, chapter one's reading of *Limitless* shows how the ideology of neoliberalism coupled with the biopolitics of cognitive enhancement are imbibed by, and expressed in, the film's narrative structure. I coined the term 'plastic narrative' to explain how the film represents a neoliberal version of enhancement in which individuality, a lack of ethics, and cognitive hierarchy culminate in the eschewal of narrative closure. Like neoliberalism, neither Eddie's narrative or his enhancement ever attain a satisfactory level of production. As with my critique of Malabou's plasticity, Eddie continuously metamorphosises without any ethical self-reflection eliding prototypical fictional elements like anagnorisis. However, I argued that read against the grain this marks a death-knell to neoliberalism – in producing an enhanced subject whose inability to come to narrative closure reflects neoliberalism's hollow production and ideological reduction in the wake of populist ideologies as I explored in my subsequent reading of *Nexus*.

In contrast, chapter three considered recent dementia fiction and identifies a surprising antithesis to the plastic narrative which, reading Malabou, Freud, and Brooks I termed the 'elastic narrative'. Like *Limitless*, elastic narratives similarly reject the narrative desire and expectation of ending; however, rather than constantly adapting in the model of future oriented plasticity, these elastically stretch backwards. At a character level, for *Elizabeth is Missing's* Maud and *Turn of Mind's* Jennifer this backwardness results in subjective experiences of the past; at a plotting and narrative level, this is in the guise of an elliptical return to previous parts of the narrative that constantly forestall the 'ending'. I argued that this elasticity figuratively eschews the medical and pathological model of dementia which views the dementia subject as only fighting against a diseased brain and ultimately death. Moreover, I

explained how, despite the often debilitating symptoms of dementia, this elastic quality offers an epistemological antidote to the problems of the neoliberal plasticity and enhancement. The circular quality of *Elizabeth is Missing* and the middle section of *Turn of Mind* where Jennifer experiences life in the present tense frustrates not only the medical gaze that only views them as de-agential ‘dementia sufferers’, but confronts readers with a narrative that goes in directions other than forwards: often backwards, repetitive, or in imaginative sideways leaps.

Chapter two articulated how neuro discourse, diagnoses, and phantom prejudice pertaining to autism produce new and emblematic figures of the autistic shooter and hacker. I argued that these figures personify the two primary ways autism is represented in culture and society today, as either asocial and unempathetic to the extent it causes a propensity to violence, or asocial but technologically gifted and talented and thus economically viable. With reference to the recent history of the fictional courtroom I have argued that while these hyperreal courts are typically spaces in which real biopolitical or ideological injustices can be ‘corrected’, *House Rules* depicts a fictional court in which the machinations of legal protection that typify fictional courts are derelict in their narrative duty. There is no legal defence fighting for Jacob’s innocence and I argued the typically ‘feel-good’ generic triumph of a plucky law firm against the unjust legal machinations of the state becomes a ‘feel-bad’ narrative soaked in helplessness and the presumption of guilt. This is arguably reflective of dominant – and discriminatory - views of autism and typifies a pathological prejudice that too simplistically equates symptoms with subjectivity, rather than understanding subjectivity as resulting from unique individual experience. The chapter continued by considering the cultural figuration

of the hacker through characters such as Lisbeth Salander and Jesse Banks whose narratives counterpose the feel-bad reduction of autistic agency and subjectivity as depicted in *House Rules* through feel-badass radical embodiments of autistic subjectivity. I showed how theirs are not narratives of personal or public redemption as with Jacob's trial, but rather they are nemeses hacking against the hubristic normalising biopolitics and technology that sought to monitor, counter, and manipulate them (and Jacob).

The arguments I have developed across this thesis maintain that the neural implantation offers a novel and necessary framework to understand the cultural and subjective effects of the neuro-turn and the identification and classification of brain and cognitive difference. However, it must be underlined that attempts to describe and capture how implantations act, move, and codify in society, culture, and lived experience has proven to be a difficult task. This is because implantations exist in extremely fast-moving biopolitical, technological, and discursive domains. Take for example autism, which I have argued today is culturally represented along the dual poles of the shooter and the hacker as emblematic of violence and brilliance. I thoroughly maintain this dichotomy and the way in which it has recently been implanted into one young woman, Greta Thunberg, is disconcerting in its accuracy. In introducing this thesis, I recommended holding in mind a quotation from Thunberg about how lived experiences of cognitive differences represent both immense challenges and forms of superpower. I wish to conclude by reflecting on this in light of my analysis, with a look to emerging questions raised by, but beyond the scope of, the thesis.

Thunberg fits precisely into the aspects of the shooter/hacker dynamic and the kinds of autistic ontologies chapter two considered. On the one hand she is considered dangerous. Chapter two contains a quotation from Piers Morgan in which he accuses Thunberg of ‘terrifying millions of children to children to the extent that eco anxiety is now massively on the rise, which is a genuine stress condition now’ immediately after listing her own extensive diagnostic history.<sup>8</sup> Putting to one side Morgan’s (presumably ideologically driven) ready acceptance of eco-anxiety as a medical classification in the face of his sustained denial of medical classifications and ontologies of non-binary gender difference, his belief that Thunberg is ‘terrifying’ in collocation with her cognitive difference is typical of the violent/danger narrative implanted into her – overwhelmingly by right-wing commentators.<sup>9</sup> For example, populist US commentator Dinesh D’Souza pictorially compared Thunberg to Nazi propaganda, writing in a widely shared tweet that ‘Nordic white girls with braids and red cheeks – were often used in Nazi propaganda’.<sup>10</sup> Elsewhere, in the UK journalist Jeremy Clarkson called Thunberg ‘mad and dangerous’, while populist troll Katie Hopkins was recorded calling Thunberg and ‘autistic fucking wench’.<sup>11</sup> It is true that these represent somewhat isolated remarks; however, coupled with the shift from

---

<sup>8</sup> Morgan, ‘Is Greta Thunberg a Force for Change of Inciting Fear?’.

<sup>9</sup> In a guide detailing the effects our changing climate could and is having on mental health the American Psychological Association defines ‘eco-anxiety’ as ‘a chronic fear of environmental doom’. Susan Clayton, Christie Manning, and Kirra Krygsmann, ‘Mental Health and Our Changing Climate: Impacts, Implications, and Guidance’, American Psychological Association, March 2017.

<sup>10</sup> Dinesh D’Souza, Twitter, 22 September 2019

<<https://twitter.com/DineshDSouza/status/1175848457191510016>> [accessed 3 March 2020].

<sup>11</sup> Jeremy Clarkson cited in James Brinsford, ‘Jeremy Clarkson brands Greta Thunberg ‘mad and dangerous’ in rant on Sunrise’, *Mirror*, 5 December 2019 < <https://www.mirror.co.uk/3am/celebrity-news/jeremy-clarkson-brands-greta-thunberg-21029959>> [accessed 3 March 2020]; Katie Hopkins in Matt Novak, ‘YouTuber Gives Fakes Award to Far-Right Activist Who Calls Greta Thunberg as ‘Autistic Fucking Wench’, *Gizmodo*, 31 January 2020 < <https://gizmodo.com/youtuber-gives-fake-award-to-far-right-activist-who-cal-1841376254>> [accessed 3 March 2020].

neoliberalism's putative models of inclusivity (despite chapter one's analysis of this model's limitations) to populist rhetoric and realities of exclusion, such commentariat represents an insidious and emerging freedom of hate speech. Indeed, much like my reading of Lisbeth Salander the media – particularly social media – has proven to be an open forum through which to abuse Thunberg.<sup>12</sup>

On the other hand, and representative of the hacker subject, Thunberg is heralded as an ecological saviour imbued with superhuman skills to save the planet. For example, Margaret Atwood called her the Joan of Arc of the environment, whereas the *New Republic's* Osita Nwanevu more explicitly likens her to God in his article 'sinners in the Hands of an Angry Greta Thunberg', in which he describes her as a global figure to save, if not the planet, then our consciences.<sup>13</sup> Thus, like *The Code's* Jesse Banks or Salander, Thunberg is simultaneously derided and desired for her cognitive difference: capable of holding power to account, providing she is able to be controlled.

Thunberg is not the only instance in which ideologies and narratives of the climate crisis imbricate with neuroscience and the brain. Chapter one and three briefly considers how Eddie's plastic narrative is reflective of the hubristic idea that

---

<sup>12</sup> After Thunberg spoke at rally in Bristol in 2020, the *Bristol Post* published public responses on their social media posts who were critical or hateful towards Thunberg, including calls to burn her at the stake. Tristan Cork, 'The abuse and threats made to Greta Thunberg by people from Bristol', *Bristol Post*, 29 February 2020 <<https://www.bristolpost.co.uk/news/bristol-news/abuse-threats-made-greta-thunberg-3897936>> [accessed 3 March 2020].

<sup>13</sup> Margaret Atwood cited in Olivia Petter, 'Margaret Atwood Says Greta Thunberg is the 'Joan of Arc' of Environmentalism', *Independent*, 7 November 2019 <<https://www.independent.co.uk/life-style/margaret-atwood-greta-thunberg-joan-of-arc-environmentalism-climate-change-a9188841.html>> [accessed 3 March 2020]; Osita Nwanevu, 'Sinners in the Hands of an Angry Greta Thunberg', *The New Republic*, 25 September 2019 <<https://newrepublic.com/article/155170/sinners-hands-angry-greta-thunberg>> [accessed 3 March 2020].

a neuroscientific and technologically advanced society will be able to solve problems such as the climate crisis through thinking our way out of the issue, rather than engaging in direct and present action. Whereas, neuroscience is also being invoked to explain, in a manner like brain scanning mindfulness' efficacy that introduced this thesis, why we are so apathetic towards the climate crisis.<sup>14</sup> I conclude with this consideration the climate crisis because it highlights the extent and reach not only of the neuro-turn, but the myriad ways neural implantations entwine with some of the most pressing issues of the contemporary moment. Indeed, though this thesis provides a holistic framework through which to understand cognitive difference in society and culture today, how the brain and its differences interact with the climate crisis highlights that there is clearly much more work to be done in exploring the implantation phenomenon. This is particularly true when considered in conjunction with recent political and ideological shifts.

It is true that thesis has developed a cultural framework through which to think about cognitive difference in the contemporary moment. Much of this has focussed on the biopolitical imperatives of neoliberalism, which regarding the brain are bolstered through a belief in neuroscience and medicine and the legitimacy of its supposedly objective truth claims. Through my case studies I have deconstructed this objectivity and offered readings of cognitive difference that maintain the importance

---

<sup>14</sup> A 2014 *Guardian* article titled 'Your brain on climate change: why the threat produces apathy, not action' and accompanied by a large brain scan image is typical of the neuro-turn's fascination with measuring how specifically brains respond to various stimuli or psychological situations. The article explains that the brain is not equipped to comprehend slowly-emerging threats such as incremental climate changes. Greg Harman, 'Your brain on climate change: why the threat produces apathy, not action', *Guardian*, 10 November 2014 <<https://www.theguardian.com/sustainable-business/2014/nov/10/brain-climate-change-science-psychology-environment-elections>> [accessed 3 March 2020].



of subjective narrative. However, threaded throughout are references to a populist shift away from existing hegemonies of neoliberal claims to inclusion. Future research must look specifically at this shift, because, it is likely that despite neoliberalism's failings, the putative belief in objective inclusivity is less damaging than emerging populist models. My reading of the speculative world of *Nexus* suggested that the shifts towards isolationism and scientific scepticism that are nascent in society today, may only entrench current the current normative problems associated with cognitive difference.

For instance, future work must look at the emerging body of research and narratives of lived experiences pertaining to neurobiological models of violence. These seek to reframe violence as a public health issue, primarily evidenced through material models that claim to find violence at the site of the brain.<sup>15</sup> The pathologisation of violence through diagnoses such as conduct disorder raise important ethical debates. On the one hand, this diagnostic intervention could provide respite for families who have endured years of problematic behaviour and

---

<sup>15</sup> For academic books on this subject see Michael H. Stone, *The Anatomy of Evil* (Amherst: Prometheus Books, 2009); Abigail Marsh, *Good for Nothing: From Altruists to Psychopaths and Everyone in Between*, (London: Robinson, 2017); Simon Baron-Cohen, *The Science of Evil: On Empathy and the Origins of Cruelty* (New York: Basic Books, 2011); Adrian Raine, *The Anatomy of Violence: The Biological Roots of Crime* (London: Penguin, Books, 2013). Raine in particular stresses his desire to reframe violence as a public health crisis, hoping that society can 'think about it rationally and clinically; not infected by sin and evil' (336). This couples with emotive parental experiences of violent children such as the mother of Columbine school shooter Sue Klebold who said during a TED talk: 'The third challenge I have when I talk about my son's murder-suicide is that I'm talking about mental health –excuse me – is that I'm talking about mental health, or brain health, as I prefer to call it, because it's more concrete'. Sue Klebold, *My son was a Columbine shooter. This is my story* [online], TEDMED, 2016. <[https://www.ted.com/talks/sue\\_klebold\\_my\\_son\\_was\\_a\\_columbine\\_shooter\\_this\\_is\\_my\\_story/details?language=en](https://www.ted.com/talks/sue_klebold_my_son_was_a_columbine_shooter_this_is_my_story/details?language=en)>. See also, Liza Long, 'I am Adam Lanza's Mother: It's time to talk about mental illness', *The Blue Review* [online], 15 December 2012 <<https://thebluereview.org/i-am-adam-lanzas-mother/>>; Libby Brooks 'Treat London's Violence as public health crisis, say Scottish experts', *Guardian*, 6 April 2018 <<https://www.theguardian.com/uk-news/2018/apr/06/treat-london-violence-as-public-health-crisis-say-scottish-experts>>.

abuse by violent children, as well as ontological implantations that may offer explanations for often irrational patterns of violence.<sup>16</sup> On the other hand, nascent research I have begun on the diagnostic rates of conduct disorder statistically suggest it is far from immune to racial profiling, which could compound the differential and ontologically damaging ways in which poor behaviour is considered at the level of race.<sup>17</sup> Worrisome are the compassions being drawn between populist exclusivity and the return of scientific racism, rebranded for the twenty-first century as ‘race realism’.<sup>18</sup> Angela Saini, whose research tracks the return of scientific racism, argues that race realists ‘join the growing ranks of climate change deniers, anti-vaxxers, and flat-earthers in insisting that science is under the yoke of some grand master plan designed to pull the wool over everyone’s eyes’.<sup>19</sup> Moreover, could the recent flurry of thriller novels centring around pathologized violent children help elucidate or compound neural implantations of violence or deviance?<sup>20</sup> Such important and emerging questions lay beyond the scope of this thesis, but this troubling combination of populism, diagnostic medicine and national health policy, and Saini’s articulation of a kind of post-truth science could produce neural implantations of deviance – such as in the case of conduct disorder – at a macromolecular level.

---

<sup>16</sup> Liza Long, ‘I am Adam Lanza’s Mother: It’s time to talk about mental illness’.

<sup>17</sup> See introduction, footnote 103.

<sup>18</sup> Nancy LeTourneau, ‘Race Realism and the Election of Donald Trump’, *Washington Monthly*, 26 March 2018 <<https://washingtonmonthly.com/2018/03/26/race-realism-and-the-election-of-donald-trump/>> [accessed 17 September 2019].

<sup>19</sup> See Angela Saini, ‘The Internet is a Cesspool of Racist Pseudoscience’, *Scientific American*, 29 July 2019 <<https://blogs.scientificamerican.com/voices/the-internet-is-a-cesspool-of-racist-pseudoscience/>> [accessed 17 September 2019].

<sup>20</sup> See recent thriller novels exploring neurological models and explanations of childhood violence such as Ali Land’s *Good Me Bad Me* (London: Penguin, 2017); Herman Koch, *The Dinner*, trans. by Sam Garrett (London: Atlantic Books, 2012); Amanda Panitch, *Damage Done* (New York: Random House, 2015); Zoje Stage, *Bad Apple* (London: Bantam Press, 2018).

Ultimately, this thesis has argued that there is a compact between the identification of brain and cognitive difference, biopolitical imperatives and geopolitics, the emergence of new subjectivities and states of personhood, and novel forms of cultural and narrative representation encapsulated in the framework of the neural implantation. I have shown the power and importance imbued and bound to notions of the norm but realised that current and proposed neurotechnology fits outside of what is historically understood through pathological models. This is why I dedicated a section to figurations and ontologies of the enhanced human in order to explore and ethically evaluate what its effects may be, finding particular critique with regard to the potential formation of a new social aspiration – no longer through internalised disciplinary normalcy – but through the image and potential of the ideal ‘brain’. It also crucially considered the ways the dominant neurological categories of dementia and autism can be read, as examples of different – sometimes excitingly radically different – lived experiences through depictions in cultural narratives.

The neural implantation as underpinned by this contemporary turn to neuroscientific models and explanations is, relatively speaking, in its infancy. I have provided ways to think through, alongside, and beyond the medical models of cognitive difference to re-find or re-claim an individual subjectivity from within the implantation itself. This is a cultural and critical task that must continue.



## Bibliography

- 'Boosting Synaptic Plasticity to Accelerate Learning', DARPA, 16 May 2016, <<https://www.darpa.mil/news-events/2016-03-16>> [accessed 26 February 2018].
- 'Did Kevin respect his Mum after all?' <<https://www.goodreads.com/topic/show/887622-did-kevin-respect-his-mum-after-all>> [accessed 5 December 2019].
- 'Donald Trump Believes His Genes Are The Secret To His Success, Says Children Will Benefit', *Time*, YouTube, 12 September 2017, <<https://www.youtube.com/watch?v=qZffKgGiizI>> [accessed 9 August 2019].
- 'Gary McKinnon profile: Autistic 'hacker' who started writing computer programs at 14', *Telegraph*, 23 January 2009, USA section <<https://www.telegraph.co.uk/news/worldnews/northamerica/usa/4320901/Gary-McKinnon-profile-Autistic-hacker-who-started-writing-computer-programs-at-14.html>> [accessed 18 May 2018].
- 'Neuroethics Working Group', *The BRAIN Initiative* online <<https://www.braininitiative.nih.gov/about/neuroethics.htm>> [accessed 18 February 2019].
- 'Our Employment Campaign', *National Autistic Society*, <<https://www.autism.org.uk/get-involved/campaign/employment.aspx>> [accessed 18 December 2019].
- 'Overview', *Human Brain Project* online <<https://www.humanbrainproject.eu/en/science/overview/>> [accessed 18 February 2019].
- 'Panorama: Crisis in Care', *BBC*, 29 May 2019 <<https://www.bbc.co.uk/programmes/m0005jpf>> [accessed 12 February 2020].
- 'People with autism are 'dying younger,' warns study', *NHS* [online], 21 March 2016 <<https://www.nhs.uk/news/neurology/people-with-autism-are-dying-younger-warns-study/>> [accessed 16 July 2019].
- 'The History of OCD', *OCD UK*, <<https://www.ocduk.org/ocd/history-of-ocd/>> [accessed 9 September 2019].
- 'The language we use to describe autism', *National Autistic Society*, <<https://www.autism.org.uk/about/what-is/describing.aspx>> [accessed 4 December 2019].
- 'Wonder pill could help adults learn new language or instrument just like a child', *Express*, 29 June 2017, <<https://www.express.co.uk/life-style/life/822837/Wonder-pill-learning-language-instrument-adults-children>> [accessed 8 August 2019].
- Abbott, Alison, 'Is 'friendly fire' in the brain provoking Alzheimer's disease?' *Nature*, 24 April 2018, News feature <<https://www.nature.com/articles/d41586-018-04930-7>> [accessed 18 August 2018].

- Allely, Clare S. and others, 'Neurodevelopmental and psychosocial risk factors in serial killers and mass murderers' in *Aggression and Violent Behaviour*, 19.3 (2014), 288-301.
- Alter, Charlotte, Suyin Haynes and Justin Worland, '2019 Person of the Year: Greta Thunberg', *Time* <<https://time.com/person-of-the-year-2019-greta-thunberg/>> [accessed 17 December 2019].
- Alzheimers Research UK, *Make breakthroughs possible* [online], YouTube 20 September 2018, <[https://www.alzheimersresearchuk.org/makepossible/?gclid=EAIaIQobChMIhOmw8qvT3QIVk-R3Ch0e0gUPEAAAYASAAEgJCvPD\\_BwE](https://www.alzheimersresearchuk.org/makepossible/?gclid=EAIaIQobChMIhOmw8qvT3QIVk-R3Ch0e0gUPEAAAYASAAEgJCvPD_BwE)> [accessed 18 July 2019].
- Amador, Xavier cited in in Simon J. Bronner, 'The Shooter Has Asperger's: Autism, Belief, and 'Wild Child' Narratives', *Children's Folklore Review*, 36 (2014), 35-54.
- American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders: Third Edition*, (Washington DC: American Psychiatric Association, 1980).
- American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders: Fourth Edition*, (Washington DC: American Psychiatric Association, 1994).
- American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders Fifth Edition* (Washington DC: American Psychiatric Association, 2013).
- Asthana, Anushka and Jessica Elgot, 'Theresa May ditches manifesto plan with 'dementia tax' U-turn', *Guardian*, 22 May 2017 <<https://www.theguardian.com/society/2017/may/22/theresa-may-u-turn-on-dementia-tax-cap-social-care-conservative-manifesto>> [accessed 19 February 2019].
- Atkin, Simon, *First Steps to Living With Dementia* (Oxford: Lion Books, 2013).
- Atkins, D. Lanette and others., 'Mental Health and Incarcerated Youth. I: Prevalence and Nature of Psychopathology', *Journal of Child and Family Studies*, 8.2 (1999), 193-204.
- Atwood, Margaret cited in Olivia Petter, 'Margaret Atwood Says Greta Thunberg is the 'Joan of Arc' of Environmentalism', *Independent*, 7 November 2019 <<https://www.independent.co.uk/life-style/margaret-atwood-greta-thunberg-joan-of-arc-environmentalism-climate-change-a9188841.html>> [accessed 3 March 2020].
- Banks, Iain, *The Wasp Factory* (London: Abacus, 2013).
- Baron-Cohen, Simon, 'Theory of Mind and Autism: A Review', in *International Review of Research in Mental Retardation*, 23 (2000), 169-184.
- Baron-Cohen, Simon, *The Science of Evil: On Empathy and the Origins of Cruelty* (New York: Basic Books, 2011).
- Bataille, Georges, *Literature and Evil*, trans. by Alastair Hamilton, (New York: Marion Boyars, 1985).

- Baudrillard, Jean, *Simulacra and Simulation*, trans. by Sheila Faria Glaser (Ann Arbor: The University of Michigan Press, 1994).
- Berger, Neil, *Limitless* (Relativity, 2011).
- Berryessa, Colleen M., 'Judicial Perceptions of Media Portrayals of Offenders with High Functioning Autism Spectrum Disorders', *International Journal of Criminology and Sociology*, 3 (2014), 1-22.
- Besson, Luc, *Lucy* (Universal Pictures, 2014).
- Best, Shivali, 'The headband that makes you smarter: US military reveals a bizarre device that increases learning by 40% - and it could be commonly used by 2022', *Daily Mail*, 23 October 2017 <<http://www.dailymail.co.uk/sciencetech/article-5008179/Darpa-reveals-device-increases-learning-40.html>> [accessed 26 February 2018].
- Bettelheim, Bruno, *The Empty Fortress: Infantile Autism and the Birth of the Self* (New York: The Free Press, 1972).
- Birse, Shelley, *The Code* (ABC1, 2014-2016).
- Bitenc, Rebecca Anna, 'Representation of Dementia in Narrative Fiction' in *Knowledge and Pain*, ed. by Esther Cohen, and others (Amsterdam: Radopi, 2012), pp.305-330.
- Black Keys, The, 'The Black Keys - Howlin' For You [Official Music Video]', *YouTube*, 11 February 2011, <[https://www.youtube.com/watch?v=TLSpj7q6\\_mM](https://www.youtube.com/watch?v=TLSpj7q6_mM)> [accessed 22 July 2019].
- Bloom, Harvey, 'Neuro-Narratives', *The American Prospect*, 9 November 2001 <<https://prospect.org/article/neuro-narratives>> [accessed 21 August 2019].
- Bojorquez, Manuel, 'Missed warning signs emerge in Florida school shooting', *CBS News*, 19 February 2018 <<https://www.cbsnews.com/news/nikolas-cruz-florida-school-shooting-new-details-emerge-dcf/>> [accessed 16 May 2018].
- Boyle, Danny, *Trainspotting* (Miramax Films, 1996).
- Braidotti, Rosi, *The Posthuman* (Cambridge: Polity Press, 2013).
- Braver, Gary, *Gray Matter* (New York: Tor, 2002).
- Brooker, Charlie, *Black Mirror* (Channel Four: 2011-present).
- Brooks, Libby, 'Treat London's Violence as public health crisis, say Scottish experts', *Guardian*, 6 April 2018 <<https://www.theguardian.com/uk-news/2018/apr/06/treat-london-violence-as-public-health-crisis-say-scottish-experts>>.
- Brooks, Peter, *Reading for the Plot: Design and Intention in Narrative*, (Cambridge MA: Harvard University Press, 2003).
- Buncombe, Andrew, 'Senate investigation concludes Russia interfered in election to help Donald Trump - breaking with conclusion of House probe', *Independent*, 16 May 2018 <<https://www.independent.co.uk/news/world/americas/us->

[politics/trump-russia-probe-senate-investigation-us-election-house-probe-a8354786.html](https://www.theguardian.com/politics/trump-russia-probe-senate-investigation-us-election-house-probe-a8354786.html)> [accessed 3 July 2018].

Burke, Lucy, 'Genetics at the Scene of the Crime: DeCODING *Tainted Blood*', in *Journal of Literary and Cultural Disability Studies*, 6.2 (2012), 193-208.

Burke, Lucy, 'Imagining a future without dementia: fictions of regeneration and the crises of work and sustainability', *Palgrave Communications*, 21 December 2017, 1-9 (p.4) <DOI: 10.1057/s41599-017-0051-y> [accessed 19 July 2018].

Burke, Lucy, 'Introduction: Thinking about Cognitive Impairment' *Journal of Literary and Cultural Disability Studies*, 2.1 (2008), i-iii.

Burke, Lucy, 'Missing pieces: trauma, dementia and the ethics of reading in *Elizabeth is missing*', in *Dementia and Literature: Interdisciplinary Perspectives*, ed. by Tess Maginess (Abingdon: Routledge, 2018), pp.88-102 (pp.98-9).

Burke, Lucy, 'The locus of our dis-ease', in *Popularizing Dementia: Public Expressions and Representations of Forgetfulness*, ed. by Aagje Swinnen and Mark Schweda (Bielefeld: Transcript Verlag, 2015), pp.23-42.

Burleigh, James, 'Was Michelangelo's autistic genius a symptom of autism?', *Independent*, 1 June 2004, <<https://www.independent.co.uk/news/uk/this-britain/was-michelangelos-artistic-genius-a-symptom-of-autism-756718.html>> [accessed 9 September 2019].

Burn, Stephen J., 'Neuroscience and Modern Fiction', *Modern Fiction Studies*, 61.2 (2015), 209-225.

Butler, Patrick, 'UN panel criticises UK failure to uphold disabled people's rights', *Guardian*, 31 August 2017  
<<https://www.theguardian.com/society/2017/aug/31/un-panel-criticises-uk-failure-to-uphold-disabled-peoples-rights>> [accessed 22 July 2019].

Cadwalladr, Carole, 'The great British Brexit robbery: how our democracy was hijacked', *Guardian*, 7 May 2017  
<<https://www.theguardian.com/technology/2017/may/07/the-great-british-brexit-robbery-hijacked-democracy>> [accessed 3 July 2018].

Capstick, Andrea, John Chatwin and Katherine Ludwin, 'Challenging representations of dementia in contemporary Western fiction film: from epistemic injustice to social participation', in *Popularizing Dementia*, ed. by Aagje Swinnen and Mark Schweda (Bielefeld: Transcript Verlag, 2015), pp.259-251.

Cassavetes, Nick, *The Notebook* (New Line Cinema, 2004).

Cea, Christine N., 'Autism and the Criminal Defendant', *St. John's Law Review*, 88.2 (2014), 494-529.

Christopher, Tommy, 'Fox News And The New York Times Abet Media Effort To Falsely Link Autism With CT Shooting', *Mediaite*, 16 December 2012  
<<https://www.mediaite.com/print/fox-news-and-the-new-york-times-abet-media-effort-to-falsely-link-autism-with-ct-shooting/>> [accessed 22 May 2018].



- Clark, Lauren, 'Dementia risk: Will I one day SUFFER from Alzheimer's disease if my parents do?', *Express*, 21 September 2017, <<https://www.express.co.uk/life-style/health/856994/dementia-alzheimers-disease-symptoms>> [accessed 19 August 2018].
- Clarkson, Jeremy cited in James Brinsford, 'Jeremy Clarkson brands Greta Thunberg 'mad and dangerous' in rant on Sunrise', *Mirror*, 5 December 2019 <<https://www.mirror.co.uk/3am/celebrity-news/jeremy-clarkson-brands-greta-thunberg-21029959>> [accessed 3 March 2020].
- Clayton, Susan, Christie Manning, and Kirra Krygsman, 'Mental Health and Our Changing Climate: Impacts, Implications, and Guidance', American Psychological Association, March 2017.
- Cleave, Paul, *Trust No One* (London: Mulholland Books, 2017).
- Clerkley, Cheretta, 'Autism Society Statement on Parkland, Florida School Shooting', *Autism Society* [online], 15 February 2018 <<https://www.autism-society.org/news/autism-society-statement-parkland-florida-school-shooting/>> [accessed 8 May 2018].
- Cohn, Simon, 'Disrupting Images' in *Critical Neuroscience: A Handbook of the Social and Cultural Contexts of Neuroscience*, ed. by Suparna Choudhury and Jan Slaby, pp.179-193.
- Collins, Dave, 'Sandy Hook shooting: FBI files reveal mass killer Adam Lanza had paedophilic interest in children', *Independent*, 25 October 2017 <<https://www.independent.co.uk/news/world/americas/sandy-hook-massacre-adam-lanza-paedophilia-fbi-files-mass-shooting-newtown-elementary-school-a8018566.html>> [accessed 22 May 2018].
- Coope, Bernard, 'Dementia in the UK' in *ABC of Dementia*, ed. by Bernard Coope and Felicity A. Richards (Chichester: John Wiley and Sons Ltd., 2014), pp.1-4.
- Cooper, Melinda, discusses this notion in *Life as Surplus: Biotechnology and Capitalism in the Neoliberal Era* (Seattle: University of Washington Press, 2008).
- Cork, Tristan, 'The abuse and threats made to Greta Thunberg by people from Bristol', *Bristol Post*, 29 February 2020 <<https://www.bristolpost.co.uk/news/bristol-news/abuse-threats-made-greta-thunberg-3897936>> [accessed 3 March 2020].
- Corliss, Mary, 'We Need to Talk About Kevin: The Face of Pure Evil', *Time*, 16 May 2011 <<http://entertainment.time.com/2011/05/16/we-need-to-talk-about-kevin-the-face-of-pure-evil/>> [accessed 5 December 2019].
- Crane, Emily, 'Autistic boy, 16, is arrested after 'shooting dead his mom, dad, sister and family friend with a semi-automatic rifle' just minutes before midnight in New Year's Eve massacre', *Daily Mail*, 1 January 2018 <<https://www.dailymail.co.uk/news/article-5226757/New-Jersey-teen-arrested-shooting-dead-family.html>> [accessed 12 May 2018].

- Cullen, Dave, 'Psychopath? Depressive? Schizophrenic?', *Slate*, 20 April 2007, Technology section <<https://slate.com/technology/2007/04/was-cho-a-psychopath-a-depressive-or-a-psychotic.html>> [accessed 20 May 2018].
- Cullen, Paul, 'Irish research is unlocking the dark secrets of dementia', *Irish Times*, 9 February 2016, <<https://www.irishtimes.com/life-and-style/health-family/irish-research-is-unlocking-the-dark-secrets-of-dementia-1.2520727>> [accessed 31 October 2018].
- Curtis, Adam, *The Century of the Self*, BBC, (2002).
- D'Souza, Dinesh, Twitter, 22 September 2019 <<https://twitter.com/DineshDSouza/status/1175848457191510016>> [accessed 3 March 2020].
- Dan Goodley, 'Autism and the Human' in *Re-thinking Autism*, ed. by Runswick-Cole, Mallett and Tamimi, pp.146-158.
- Dando, Malcolm, *The Future of Chemical-Biological Weapons* (Basingstoke: Palgrave Macmillan, 2015).
- DARPA, 20 May 2019, <<https://www.darpa.mil/news-events/2019-05-20>> [accessed 12 February 2020].
- Davies, Russel T., *Years and Years* (BBC: 2019).
- Davis, Lennard, 'Normality, Power, and Culture', in *The Disability Studies Reader*, ed. by Lennard Davis (Abingdon: Routledge, 2013).
- Davis, Lennard, *Enforcing Normalcy: Disability, Deafness, and the Body* (London: Verso, 1995).
- De Vos, Jan, 'What is Critique in the Era of the Neurosciences?', in *Neuroscience and Critique [Exploring the Limits of the Neurological Turn]*, ed. by De Vos, Jan and Ed Pluth (Abingdon: Routledge, 2016).
- De Vos, Jan, *Psychologization and the Subject of Late Modernity* (London: Palgrave Macmillan, 2013);
- Dearen, Jason, Allen Breed and Tamara Lush, 'Florida school shooting suspect was investigated by state after self-harming', *Chicago Tribune*, 28 February 2018 <<http://www.chicagotribune.com/news/nationworld/ct-florida-school-shooter-nikolas-cruz-20180217-story.html>> [accessed 16 May 2018].
- Deleuze, Gilles, 'Postscript on the Societies of Control', *October*, 59, (1992), pp.3-7.
- Demme, Jonathan, *Philadelphia* (TriStar Pictures, 1993).
- Demme, Jonathan, *The Silence of the Lambs* (Orion Pictures, 1991).
- Derrida, Jacques, 'Introduction', in *The New Wounded: From Neurosis to Brain Damage*, trans. by. Steven Miller, (New York: Fordham University Press, 2012).
- Derrida, Jacques, 'Preface', in *The Future of Hegel: Plasticity, Temporality, and Dialectic*, pp.vii-xlvi.

- Didi-Huberman, Georges, *Invention of Hysteria: Charcot and the Photographic Iconography of the Salpêtrière*, trans. by Alisa Hartz (Cambridge MA: The MIT Press, 2003).
- Dilanian, Ken, 'U.S. election czar says attempts to hack the 2020 election will be more sophisticated', *NBC*, 14 January 2020 <<https://www.nbcnews.com/politics/national-security/u-s-election-czar-says-attempts-hack-2020-election-will-n1115346>> [accessed 8 March 2020].
- Dixon, Leslie, *Limitless* (CBS: 2015-2016).
- Dumit, Joseph, *Picturing Personhood: Brain Scans and Biomedical Identity* (Princeton: Princeton University Press, 2004).
- Dunn, Will, 'Autistic hackers: the teenagers who "get carried away"', *New Statesman*, 20 October 2017, Cyber section <<https://www.newstatesman.com/microsites/cyber/2017/10/will-prison-deter-autistic-teenager-hacking>> [accessed 15 May 2018].
- Elkins, Lucy, 'What's YOUR brain age? Take this test to find out and discover how simple lifestyle changes can knock years off', *Daily Mail*, 5 November 2014, <<https://www.dailymail.co.uk/health/article-2821157/Try-test-reveals-brain-age-read-knock-years-it.html>> [accessed 19 August 2018].
- Ellenby, Dani, 'The Five: Genetic Fixed For the Climate Crisis', *The Guardian*, 14 July 2019 <<https://www.theguardian.com/technology/2019/jul/14/the-five-genetic-fixes-for-the-climate-crisis>> [accessed 13 February 2020].
- Ellis, Havelock, *Studies in the Psychology of Sex, Volume 2: Sexual Inversion* (Philadelphia: F. A Davis Co., 1921).
- Evans, Bonnie, 'How autism became autism: The radical transformation of a central concept of child development in Britain', *History of the Human Sciences*, 26.3 (2013).
- Evans, Martin, 'Autistic man accused of computer hacking could kill himself if extradited, court is warned', *Telegraph*, 28 June 2016, News section <<https://www.telegraph.co.uk/news/2016/06/28/lauri-love/>> [accessed 15 May 2018].
- Falcus, Sarah and Katsura Sako, *Contemporary Narratives of Dementia: Ethics, Ageing, Politics* (London: Routledge, 2019).
- Fernyhough, Charles, *A Box of Birds* (London: Unbound Publishing, 2012).
- Ferrando, Francesca, 'Transhumanism/Posthumanism', in *Posthuman Glossary*, ed. by Rosi Braidotti and Maria Hlavajova (London: Bloomsbury, 2018), pp.438-9.
- Fischer, Peter S, Richard Levinson, and William Link, *Murder, She Wrote* (CBS, 1984-1996).
- Fitzgerald, Des and Felicity Callard, 'Social Science and Neuroscience beyond Interdisciplinarity: Experimental Entanglements', *Theory, Culture, and Society*, 32.1, (2015), 3-32.

- Fitzgerald, Helen, *The Exit* (London: Faber and Faber, 2015).
- Fleischer, Theodore E., 'The Personhood Wars' *Theoretical Medicine and Bioethics*, 20.3 (1999), 309-318.
- Foucault, Michel, *Discipline and Punish: The Birth of the Prison*, trans. by Alan Sheridan, (London: Penguin, 1991).
- Foucault, Michel, *Society Must Be Defended: Lectures at the Collège De France 1975-1976*, trans. by David Macey, (London: Penguin, 2004).
- Foucault, Michel, *The Order of Things: An Archaeology of the Human Sciences*, trans. by Alan Sheridan, (London: Routledge, 1997), pp.xii-xiii.
- Foucault, Michel, *The Will to Knowledge: The History of Sexuality Volume 1*, trans. by Robert Hurley, (London: Penguin, 1998).
- Freier, Anne, 'How CRISPR can Help Combat the Effects of Climate Change', *Medium*, 16 August 2016 <[https://medium.com/@anne\\_f/how-crispr-can-help-combat-the-effects-of-climate-change-3478ea2ff27e](https://medium.com/@anne_f/how-crispr-can-help-combat-the-effects-of-climate-change-3478ea2ff27e)> [accessed 13 February 2020].
- Freud, Sigmund, *Beyond the Pleasure Principle*, trans. by James Strachey, (London: Hogarth Press, 1950).
- Freud, Sigmund, *Civilisation and Its Discontents*, trans. by James Strachey, (New York: W. W. Norton and Company, 1962).
- Friedman, Richard A., 'Return to the Teenage Brain', *New York Times*, 8 October 2016, <<https://www.nytimes.com/2016/10/09/opinion/return-to-the-teenage-brain.html>> [accessed 26 February 2018].
- Frohlich, Joel, 'Consciousness: The Final Frontier', *Psychology Today*, 16 April 2018, <<https://www.psychologytoday.com/gb/blog/consciousness-self-organization-and-neuroscience/201804/consciousness-the-final-frontier>> [accessed 26 October 2018].
- Galeon, Dom, 'DARPA's New Brain Device Increases Learning Speed by 40%', *Futurism*, 26 October 2017, <<https://futurism.com/darpas-new-brain-device-increases-learning-speed-by-40/>> [accessed 26 February 2018].
- Galloway, Alexander, 'Catherine Malabo, or The Commerce in Being', in *French Theory Today: An Introduction to Possible Futures*, (New York: TPSNY/Erudio Editions, 2010), <<http://cultureandcommunication.org/galloway/FTT/French-Theory-Today.pdf>> [accessed 9 January 2019].
- Gander, Kashmira 'The man whose brain tumour 'turned him into a paedophile'', *Independent*, 24 February 2016 <<https://www.independent.co.uk/life-style/health-and-families/features/a-40-year-old-developed-an-obsession-with-child-pornography-then-doctors-discovered-why-a6893756.html>> [accessed 23 July 2019].
- Gatiss, Mark, and Steven Moffat, *Sherlock* (BBC, 2010-2017).

- Gere, Cathy, 'Plasticity, Pathology, and Pleasure in Cold War America' in *Plasticity and Pathology: On the Formation of the Neural Subject*, ed. by David Bates and Nima Bassiri, (New York: Fordham University Press, 2016), pp.35-64.
- Gernsbacher, Ann, and Melanie Yergeau, 'Empirical Failures of the Claim That Autistic People Lack a Theory of Mind', *Archives of Scientific Psychology*, 7.1 (2019), 102-118.
- Gibson, Suzy, Hacker Kane Gamble was just 15 when he targeted CIA, FBI and advisor to Obama', *Leicester Mercury*, 6 October 2017  
<<https://www.leicestermercury.co.uk/news/leicester-news/hacker-just-15-targeted-cia-588770>> [accessed 15 May 2018].
- Gilbert, David, 'Autistic U.K. hacker who stole U.S. secrets won't face trial in U.S.', *Vice*, 5 February 2018, News section  
<[https://news.vice.com/en\\_ca/article/pamy9b/autistic-uk-hacker-who-stole-us-secrets-wont-face-trial-in-us](https://news.vice.com/en_ca/article/pamy9b/autistic-uk-hacker-who-stole-us-secrets-wont-face-trial-in-us)> [accessed 15 May 2018].
- Gladwell, Malcolm, 'Thresholds of Violence: How School Shootings Catch On', *New Yorker*, 12 October 2015  
<<https://www.newyorker.com/magazine/2015/10/19/thresholds-of-violence>> [accessed 8 May 2018].
- Glover, David, 'The thriller', *Cambridge Companion to Crime Fiction*, ed. by. Martin Priestman (Cambridge: Cambridge University Press, 2003), pp.135-154.
- Glynn, Alan, *Limitless* (first publ. in 2001 as *The Dark Fields*, (London: Faber and Faber, 2011).
- Graham, Jefferson, 'We're in a hacking epidemic, and it's user beware', *MSN*, 19 March 2017 <<https://www.msn.com/en-nz/money/topstories/were-in-a-hacking-epidemic-and-its-user-beware/ar-BBymddz>> [accessed 30 May 2018].
- Greenslade, William P., *Degeneration, Culture, and the Novel: 1880-1940* (Cambridge: Cambridge University Press, 1994).
- Greenwood, Chris, 'Autistic Shetland teen held over global internet hacking spree 'masterminded from his bedroom'', *Daily Mail*, 31 July 2011  
<<https://www.dailymail.co.uk/news/article-2020942/Autistic-Shetland-teen-held-global-internet-hacking-spreemasterminded-bedroom.html>> [accessed 21 May 2018].
- Harari, Yuval Noah, *Homo Deus: A Brief History of Tomorrow* (London: Vintage, 2017).
- Hargreaves, Fionn, 'British schoolboy, 15, posed as a CIA director to access secret military reports and taunted FBI agents with chilling threats', *Daily Mail*, 19 January 2018 <<https://www.dailymail.co.uk/news/article-5290787/Boy-15-posed-head-CIA-secret-files.html>> [accessed 21 May 2018].
- Hargrove, Dean, *Matlock* (NBC, 1986-1995).
- Harman, Greg, 'Your brain on climate change: why the threat produces apathy, not action', *Guardian*, 10 November 2014 <<https://www.theguardian.com/sustainable->

[business/2014/nov/10/brain-climate-change-science-psychology-environment-elections>](#) [accessed 3 March 2020].

Harvey, David, *A Brief History of Neoliberalism* (Oxford: Oxford University Press, 2007).

Hassall, Richard, 'Does everybody with an autism diagnosis have the same underlying condition?' in *Re-thinking Autism*, ed. by Runswick-Cole, Mallett and Tamimi, pp.49-66.

Heaberlin, Julia, *Paper Ghosts* (London: Penguin, 2018).

Healey, Emma, *Elizabeth is Missing* (London: Penguin, 2014).

Henderson, Victoria, and others, 'Hacking the master code: cyborg stories and the boundaries of autism', *Social & Cultural Geography*, 15.5 (2014), 504-524 <<https://doi.org/10.1080/14649365.2014.898781>> [accessed 25 May 2018].

Herbert, Tom, 'Hacker' says victory against US extradition is a big win for people with autism', *Metro*, 5 February 2018 <<https://metro.co.uk/2018/02/05/computer-hacker-wins-hearing-extradition-us-7287823/>> [accessed 15 May 2018].

Herman, Robin, 'Tinkering with the Essence of Humanity', *Washington Post*, 8 October 1991, in *Proquest* <<https://search-proquest-com>> [accessed 22 July 2019].

Hitchcock, Alfred, *Vertigo* (Paramount Pictures, 1958).

Hopkins, Katie in Matt Novak, 'YouTuber Gives Fakes Award to Far-Right Activist Who Calls Greta Thunberg as 'Autistic Fucking Wench'', *Gizmodo*, 31 January 2020 <<https://gizmodo.com/youtuber-gives-fake-award-to-far-right-activist-who-cal-1841376254>> [accessed 3 March 2020].

Horsley, Lee, *Twentieth Century Crime Fiction* (Oxford: Oxford University Press, 2005).

House of Commons Joint Committee on Human Rights, 'The detention of young people with learning disabilities and/or autism', 1 November 2019.

Hudson, Chloe C. and others, 'Prevalence of Depressive Disorders in Individuals with Autism Spectrum Disorder: a Meta-Analysis', *Journal of Abnormal Child Psychology*, 47.1, 165-175.

Hühn, Peter, 'The Detective as Reader: Narrativity and Reading Concepts in Detective Fiction', *Modern Fiction Studies*, 33.3 (1987), 451-466.

Ian, Hacking, , 'How we have been learning to talk about autism: a role for stories', *Metaphilosophy*, 40 (2009), 499-516 <<https://doi.org/10.1111/j.1467-9973.2009.01607.x>> [accessed 17 May 2018].

Interagency Autism Coordinating Committee, *2011-2012 Autism Spectrum Disorder Research: Portfolio Analysis Report* [online] <[https://iacc.hhs.gov/publications/portfolio-analysis/2012/portfolio\\_analysis\\_2012.pdf](https://iacc.hhs.gov/publications/portfolio-analysis/2012/portfolio_analysis_2012.pdf)> [accessed 17 July 2019].

Jameson, Fredric, 'Reification and Utopia in Mass Culture', *Social Text*, 1 (1979), 130-148.

- Jameson, Fredric, *Archelologies of the Future: The Desire Called Utopia and Other Science Fictions* (London: Verso Press, 2005).
- Joelle Abi-Rached and Nikolas Rose, 'The birth of the neuromolecular gaze', *History of The Human Sciences*, 23.1 (2010), 11-36.
- Johnston, Ian, 'Brains of paedophiles who abuse children are different to those who do not, scientists discover' *Independent*, 25 October 2016  
<<https://www.independent.co.uk/news/science/paedophile-brains-difference-child-sex-abusers-those-who-dont-study-a7378911.html>> [accessed 23 July 2019].
- Johnstone, Megan-Jane, 'Metaphors, stigma and the 'Alzheimerization' of the euthanasia debate', *Dementia*, 12.4 (2011), 377-393.
- Jung, C. G., *Aion: Researches into the Phenomenology of the Self*, trans. by R. F. C. Hull (New York: Pantheon Books, 1959).
- Kaiser Health News, 'Families Confront Dementia and Guns', *U.S. News and World Report*, 27 June 2018, <<https://www.usnews.com/news/healthiest-communities/articles/2018-06-27/unlocked-and-loaded-families-confront-dementia-and-guns>> [accessed 18 August 2018].
- Katims, Jacob, *Parenthood* (NBC, 2010-2015).
- Kelleher, Suzanne Rowan, 'This Is Your Brain on Travel', *Forbes*, 28 July 2019  
<<https://www.forbes.com/sites/suzannerowankelleher/2019/07/28/this-is-your-brain-on-travel/#1e0c8fb82be6>> [accessed 14 August 2019].
- Kelley, David E., *Ally McBeal* (Fox, 1997-2002).
- Kelley, David E., *The Practice* (ABC, 1997-2004).
- Kenny, Lorcan, and others, 'Which terms should be used to describe autism? Perspectives from the UK autism community', in *Autism*, 20 (2016), 442-462.
- Kermode, Frank, *The Sense of an Ending: Studies in the Theory of Fiction*, (Oxford University Press, 2000).
- Kerr, Phillip, *A Philosophical Investigation* (London: Vintage, 1996).
- Kessler, Todd A., Glenn Kessler, and Daniel Zelman, *Damages* (FX, 2011-12).
- Keyes, Daniel, *Flowers for Algernon* (London: Gollancz, 2002).
- Kim Davies, 'How Rude? Autism as a Study in Ability', in *Re-thinking Autism*, ed. by Runswick-Cole, Mallett and Tamimi, pp. 132-145.
- Kindelan, Katie, 'Will people with Down syndrome unlock the mystery of Alzheimer's disease?', *ABC News*, 22 June 2018,  
<<https://abcnews.go.com/GMA/Wellness/people-syndrome-unlock-mystery-alzheimers-disease/story?id=55942847>> [accessed 31 October 2018].
- King, Robert, and Michelle King, *The Good Wife* (CBS, 2009-2016).

- King, Robert, Michelle King, and Phil Alden Robinson, *The Good Fight* (CBS: 2017-present).
- Kirkey, Sharon, 'Is the 'autism epidemic' real? Researchers say over-diagnosis to blame for spike in number of cases', *National Post*, 22 August 2019 <<https://nationalpost.com/health/autism-epidemic>> [accessed 3 March 2020].
- Klebold, Sue, *My son was a Columbine shooter. This is my story* [online], TEDMED, 2016.<[https://www.ted.com/talks/sue\\_klebold\\_my\\_son\\_was\\_a\\_columbine\\_shooter\\_this\\_is\\_my\\_story/details?language=en](https://www.ted.com/talks/sue_klebold_my_son_was_a_columbine_shooter_this_is_my_story/details?language=en)>.
- Klein, Naomi, *The Shock Doctrine* (London: Penguin, 2008).
- Klin, Ami cited in Gerry Smith, 'Is Having Autism a Defense for Hacking?', *Huffington Post*, 23 September 2011, Technology section <[https://www.huffingtonpost.co.uk/2011/09/22/hacking-autism\\_n\\_976392.html](https://www.huffingtonpost.co.uk/2011/09/22/hacking-autism_n_976392.html)> [accessed 15 May 2018].
- Koch, Herman, *The Dinner*, trans. by Sam Garrett (London: Atlantic Books, 2012).
- Korsh, Aaron, *Suits* (USA Network, 2011-2019).
- Lady Gaga, 'Born This Way', *YouTube*, 27 February 2011 <<https://www.youtube.com/watch?v=wV1FrqwZyKw>> [accessed 12 March 2020].
- LaMotte, Sandee, 'Are you in love or just high on the chemicals in your brain? Answer: Yes', *CNN*, 14 February 2020 <<https://edition.cnn.com/2020/02/14/health/brain-on-love-wellness/index.html>> [accessed 8 March 2020].
- Land, Ali, *Good Me Bad Me* (London: Penguin, 2017).
- LaPlante, Alice, *Turn of Mind* (London: Vintage, 2012).
- Larsson, Stieg, *The Girl Who Kicked the Hornets' Nest*, trans. by Reg Keeland, (London: MacLehose Press, 2015).
- Lee, Harper, *To Kill a Mockingbird* (London: Arrow, 2010).
- Lemke, Thomas, *Foucault's Analysis of Modern Governmentality: A Critique of Political Reason*, trans. by Erik Butler, (London: Verso, 2019).
- LeTourneau, Nancy, 'Race Realism and the Election of Donald Trump', *Washington Monthly*, 26 March 2018 <<https://washingtonmonthly.com/2018/03/26/race-realism-and-the-election-of-donald-trump/>> [accessed 17 September 2019].
- Levinson, Barry, *Rain Man* (MGM, 1998).
- Liljegren, Madeleine, Maria Landqvist Waldö and Elisabet Englund, 'Physical aggression among patients with dementia, neuropathologically confirmed post-mortem', *International Journal of Geriatric Psychiatry*, 33 (2017), 242-248 <DOI: 10.1002/gps.4777> [accessed 18 August 2018].
- Lipton, Anne M. and Cindy D. Marshall, *The Common Sense Guide to Dementia for Clinicians and Caregivers* (New York: Springer, 2012).



- Littlefield, Melissa M., 'Instrumental Intimacy: EEG Wearables and Neuroscientific Control' (Baltimore: Johns Hopkins University Press, 2018).
- Loftis, Sonya Freeman, *Imagining Autism: Fiction and Stereotypes on the Spectrum*, (Bloomington: Indiana University Press, 2015).
- Long, Liza, 'I am Adam Lanza's Mother: It's time to talk about mental illness', *The Blue Review* [online], 15 December 2012 <<https://thebluereview.org/i-am-adam-lanzas-mother/>>
- Lumet, Sidney, *Twelve Angry Men* (United-Artists, 1957).
- Ma, Sheng-mei, 'My Aspergirl: Stieg Larsson's Millennium Trilogy and Visualisations', *Journal of American Culture*, 37.1 (2014), 52-63.
- Magendie, Francois, *An Elementary Treatise on Human Physiology*, trans. by John Revere, (New York: Harper & Brothers Publishers, 1855).
- Malabou, Catherine, *The Future of Hegel: Plasticity, Temporality, and Dialectic*, trans. by Lisabeth During (Abingdon: Routledge, 2005).
- Malabou, Catherine, *The New Wounded: From Neurosis to Brain Damage*, trans. by Steven Miller, (New York: Fordham University Press, 2012).
- Malabou, Catherine, *What Should We Do with Our Brain?*, trans. by Sebastian Rand (New York City: Fordham University Press, 2008).
- Mallett, Rebecca and Katherine Runswick-Cole, 'The "Urge to Know" Normal: Theorising How Impairment Labels Function', in *Theorising Normalcy and the Mundane: Precarious Positions*, ed. by Rebecca Mallett, Cassandra A. Ogden and Jenny Slater (Chester: University of Chester Press, 2016), pp.95-119.
- Mandell, David S. and others., 'Disparities in Diagnoses Received Prior to a Diagnosis of Autism Spectrum Disorder', *Journal of Autism and Developmental Disorders*, 37.9 (2007), 1795-1802.
- Mann, Judy, 'The Brave New World of Cloning', *Washington Post*, 28 February 1997, in *Proquest* <<https://search-proquest-com>> [accessed 22 July 2018].
- Mantas, Jesus, 'Empathetic AI could be the next stage in human evolution – if we get it right', *World Economic Forum*, 2 July 2019 <<https://www.weforum.org/agenda/2019/07/empathic-ai-could-be-the-next-stage-in-human-evolution-if-we-get-it-right/>> [accessed 12 March 2020].
- Margalit, Karen, *The A Word* (BBC 2016-).
- Marsh, Abigail, *Good for Nothing: From Altruists to Psychopaths and Everyone in Between*, (London: Robinson, 2017).
- Martin, Alexandra J, 'Lauri Love: Autistic hacking suspect wins US extradition appeal', *Sky*, 5 February 2018 <<https://news.sky.com/story/lauri-love-autistic-hacking-suspect-wins-us-extradition-appeal-11237738>> [accessed 5 May 2018].

- Martineau, Harriet, 'Miss Martineau on Mesmerism', in *Phlanx* 1:3 (1844), pp.1-23;  
Edgar Allen Poe, 'Mesmeric Revelation' in *The Collected Works of Edgar Allan Poe – Volume 3* (Cambridge MA: Harvard University Press, 1978).
- Massey, Nina, 'Kane Gamble: Teenager with autism on Leicestershire housing estate took classified information by fooling people into thinking he was FBI boss', *Independent*, 21 January 2018, Crime section  
<<https://www.independent.co.uk/news/uk/crime/us-intelligence-cia-fbi-american-government-john-brennan-mark-giuliano-crackas-with-attitude-latest-a8170561.html>> [accessed 21 May 2018].
- McCoy, Terrence, 'Significant' statistical link between mass murder and autism, brain injury', *Washington Post*, 21 May 2014  
<[https://www.washingtonpost.com/news/morning-mix/wp/2014/05/21/study-finds-significant-portion-of-mass-murderers-and-serial-killers-had-neurological-disorders-including-autism/?utm\\_term=.da280d2b7472](https://www.washingtonpost.com/news/morning-mix/wp/2014/05/21/study-finds-significant-portion-of-mass-murderers-and-serial-killers-had-neurological-disorders-including-autism/?utm_term=.da280d2b7472)> [accessed 20 May 2018]
- McGuire, Anne, 'Life without Autism: A Cultural Logic of Violence', in *Re-thinking Autism*, ed. by Runswick-Cole, Mallett and Tamimi, pp.93-109.
- McGuire, Anne, *War on Autism: On the Cultural Logic of Normative Violence*, (Ann Arbor: University of Michigan Press, 2016).
- McKinnon, Gary, 'Theresa May saved my life – now she's the only hope for the Human Rights Act', *Guardian*, 15 November 2016, Opinion section  
<<https://www.theguardian.com/commentisfree/2016/nov/15/theresa-may-saved-my-life-human-rights-act>> [accessed 21 May 2018].
- Meeks, Spencer, 'Neuro-Crime Fiction: Detecting Cognitive Difference', in *Crime Fiction Studies*, 1.1 (2020), 79-95.
- Melissa M. Littlefield and Jennel M. Johnson, 'Introduction', in *The Neuroscientific Turn: Transdisciplinarity in the Age of the Brain*, ed. by Melissa M. Littlefield and Jennel M. Johnson (Ann Arbor: University of Michigan Press, 2012), pp.1-28.
- Meloni, Maurizio, *Political Biology: Science and Social Values in Human Hereditary from Eugenics to Epigenetics* (New York: Palgrave Macmillan, 2016).
- Mendelsohn, Fred, 'Understanding the brain and mind: science's final frontier?' *The Conversation*, 4 October 2013, <<http://theconversation.com/understanding-the-brain-and-mind-sciences-final-frontier-18331>> [accessed 26 October 2018].
- Messent, Peter, *The Crime Fiction Handbook* (Chichester: Wiley-Blackwell, 2013).
- Metzl, Jonathan, and Kenneth T. MacLeish, 'Mental Illness, Mass Shootings, and the Politics of American Firearms', *Journal of Public Health*, 105.2 (2015), 240-249.
- Metzl, Jonathan, *Prozac on the Couch: Prescribing Gender in the Era of Wonder Drugs* (Durham: Duke University Press, 2003).
- Metzl, Jonathan, *The Protest Psychosis: How Schizophrenia Became a Black Disease* (Boston: Beacon Press, 2010).

- Michael H. Stone, *The Anatomy of Evil* (New York: Prometheus Books, 2009).
- Michelle Jarman, 'Disability on Trial: Complex realities Staged for Courtroom Drama – The Case of Jodi Picoult', *Journal of Literary & Cultural Disability Studies*, 6.2 (2012), 209-225.
- Miller, Arthur, *The Crucible* (London: Methuen Drama, 2010).
- Miller, D. A., *The Novel and the Police* (Berkeley: University of California Press, 1988).
- Mills, China, 'From 'Invisible Problem' to Global Priority: The Inclusion of Mental Health in the Sustainable Development Goals', *Development and Change*, 49.3 (2018).
- Milton, Damian, 'Re-thinking autism: diagnosis, identity and equality', *Disability & Society*, 31.10, 1413-1415.
- Mitchell, David T. and Sharon L. Snyder, *Narrative Prosthesis: Disability and the Dependencies of Discourse* (Ann Arbor: University of Michigan Press, 2000).
- Mitchell, David T. and Sharon L. Snyder, *The Biopolitics of Disability: Neoliberalism, Ablenationalism, and Peripheral Embodiment* (Ann Arbor: University of Michigan Press, 2018).
- Moretti, Franco, *Signs Taken For Wonders*, trans. by Susan Fischer and others (London: Verso, 1988).
- Morgan, Piers, 'Is Greta Thunberg a Force for Change of Inciting Fear?', *Good Morning Britain*, 25 September 2019 (YouTube) <<https://www.youtube.com/watch?v=8fYQGQsqzrw>> [accessed 17 December 2019].
- Mulligan, Robert, *To Kill a Mockingbird* (Universal Pictures, 1962).
- Murison, Justine S., "'The Paradise of Non-Experts": The Neuroscientific Turn of the 1840s United States', in *The Neuroscientific Turn: Transdisciplinarity in the Age of the Brain*, ed. by Melissa M. Littlefield and Jennel M. Johnson (Ann Arbor: University of Michigan Press, 2012), pp.29-48.
- Murray, Stuart, *Representing Autism: Culture, Narrative, Fascination*, (Liverpool: Liverpool University Press, 2008), pp. 12-13.
- Newitz, Annalee, 'The Rise of the Neurothriller', *io9*, 1 March 2011, <<https://io9.gizmodo.com/5765657/rise-of-the-neurothriller>> [accessed 22 July 2019].
- Nolan, Christopher, *Inception* (Warner Brothers, 2010).
- Nolan, Jonathan, and Lisa Joy, *Westworld* (2016-present).
- Nwanevu, Osita, 'Sinners in the Hands of an Angry Greta Thunberg', *The New Republic*, 25 September 2019 <<https://newrepublic.com/article/155170/sinners-hands-angry-greta-thunberg>> [accessed 3 March 2020].

- O'Sullivan, Barry, cited in Peter Ryan, 'Banks show 'disregard' for the law, Government MPs may cross the floor to back inquiry', *ABCNews*, 27 November 2017 <<https://www.abc.net.au/news/2017-11-20/banking-royal-commission-barry-osullivan-disregard-for-law/9167818>> [accessed 13 February 2019].
- Orr, David MR, 'Dementia and detectives: Alzheimer's disease in crime fiction', *Dementia*, 28 May 2018, 1-14, <<https://doi.org/10.1177/1471301218778398>>.
- Panitch, Amanda, *Damage Done* (New York: Random House, 2015).
- Papke, David Ray, 'The American Courtroom Trial: Pop Culture, Courthouse, Realities, and the Dream World of Justice', *South Texas Law Review*, 40 (1999), 919-932.
- Park, Alice, 'Don't blame Adam Lanza's violence on Asperger's', *Time*, 11 March 2011 <<https://time.com/19957/adam-lanzas-violence-wasnt-typical-of-aspergers/>> [accessed 22 May 2018].
- Park, Denise C., 'The aging mind: neuroplasticity in response to cognitive training', in *Dialogues in Clinical Neuroscience*, 15.1 (2013) pp.109-19
- Park, Madison, 'When Alzheimer's turns violent', *CNN*, March 30, 2011, <<http://edition.cnn.com/2011/HEALTH/03/30/alzheimers.violence.caregiving/index.html>> [accessed 18 August 2018].
- Parkin, Simon, 'Keyboard warrior: the British hacker fighting for his life', *Guardian*, 8 September 2017 <<https://www.theguardian.com/news/2017/sep/08/lauri-love-british-hacker-anonymous-extradition-us>> [accessed 15 May 2018].
- Percy, Walter, *The Thanatos Syndrome* (New York: Farrar, Straus, Giroux, 1987).
- Petryna, Adriana and Arthur Kleinman, 'The Pharmaceutical Nexus', in *Global Pharmaceutical: Ethics, Markets, Practices*, ed. by Adriana Petryna, Andrew Lakoff, and Arthur Kleinman (Durham: Duke University Press, 2006).
- Phillips, Fiona and Elena Antonova, *The Truth About... Stress*, BBC, 4 May 2017, online video recording, BBC iPlayer <<https://www.bbc.co.uk/iplayer/episode/p04yy2n4/the-truth-about-11-stress>> [accessed 23 October 2017].
- Pickersgill, Martyn, Sarah Cunningham and Paul Martin, 'Constituting neurologic subjects: Neuroscience, subjectivity, and the mundane significance of the brain' *Subjectivity*, 4.3 (2011), 246-365.
- Picoult, Jodi, *House Rules* (London: Hodder & Stoughton, 2010).
- Pitts-Taylor, Victoria, 'The plastic brain: neoliberalism and the neuronal self', *Health*, 14.6 (2010), 635-652.
- Preidt, Robert, 'What TV Binge-Watching Does to Your Brain', *WebMD*, 12 August 2019 <<https://www.webmd.com/brain/news/20190812/what-tv-binge-watching-does-to-your-brain>> [accessed 14 August 2019].
- Pykett, Jessica, *Brain Culture: Shaping Policy through Neuroscience*, (Bristol: Policy Press, 2015), p.10.

- Rafter, Nicole, *Shots in the Mirror: Crime Films and Society* (Oxford: Oxford University Press, 2006).
- Raine, Adrian, *The Anatomy of Violence: The Biological Roots of Crime* (London: Penguin, Books, 2013).
- Ramachandran, V.S, *Phantoms in the Brain: Human Nature and the Architecture of the Mind*, (London: Harper Perennial, 2005).
- Rashid, Robia, *Atypical* (Netflix, 2017-).
- Reiner, Rob, *A Few Good Men* (Columbia Pictures, 1992).
- Roden, David, *Posthuman Life: Philosophy and the Edge of the Human* (Abingdon: Routledge, 2015).
- Rose, Nikolas and Joelle M. Abi-Rached, *Neuro: The New Brain Sciences and the Management of the Mind* (Princeton, Princeton University Press, 2013).
- Rose, Nikolas, *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century* (Princeton: Princeton University Press, 2007).
- Roth, Marco, 'The Rise of the Neuronovel', *Recessional*, 8 (2009) <<https://nplusonemag.com/issue-8/essays/the-rise-of-the-neuronovel/>> [accessed 29 July 2019].
- Runswick-Cole, Katherine, 'Understanding This *Thing* Called Autism' in *Re-Thinking Autism: Diagnosis, Identity and Equality*, ed. by. Katherine Runswick-Cole, Rebecca Mallett and Sami Timimi (London: Jessica Kingsley Publishers, 2016), pp.19-30.
- Saini, Angela, 'The Internet is a Cesspool of Racist Pseudoscience', *Scientific American*, 29 July 2019 <<https://blogs.scientificamerican.com/voices/the-internet-is-a-cesspool-of-racist-pseudoscience/>> [accessed 17 September 2019].
- Salisbury, Laura, and Hannah Proctor, 'The History of a Brain Wound: Alexander Luria and the Dialectics of Soviet Plasticity', in *Plasticity and Pathology: On the Formation of the Neural Subject*, ed. by David Bates and Nima Bassiri (New York: Fordham University Press, 2016), pp.194-218.
- Salisbury, Laura, 'Translating Neuroscience: Fictions of the Brain in the 2000s', in *The 2000s: A Decade of Contemporary British Fiction*, ed. by Nick Bentley, Nick Hubble, Leigh Wilson (London: Bloomsbury Academic, 2015).
- Sanders, Laura, 'Autism may carry a benefit: a buffer against Alzheimer's', *Science News*, 2 July 2014, <<https://www.sciencenews.org/article/autism-may-carry-benefit-buffer-against-alzheimer%E2%80%99s>> [accessed 12 August 2018].
- Scorsese, Martin, *The Wolf of Wall Street* (Paramount Pictures, 2013).
- Shaw, Sam, and Dustin Thomason, *Castle Rock* (Warner Brothers, 2018-present).
- Sheffer, Edith, *Asperger's Children: The Origins of Autism in Nazi Vienna* (New York: W. W. Norton and Company, 2018).
- Shore, David, *The Good Doctor* (ABC, 2017-present).

- Showalter, Elaine, *The Female Malady: Women, Madness, and English Culture, 1830-1980* (London: Penguin Books, 1985).
- Shriver, Lionel, *We Need to Talk About Kevin* (London: Serpent's Tail, 2003).
- Sinfield, Alan, *The Wilde Century: Oscar Wilde, Effeminacy and the Queer Moment* (London: Cassell, 1994).
- Smukler, David, 'Unauthorized Minds: How "Theory of Mind" Theory Misrepresents Autism', in *Mental Retardation*, 43.1 (2005), 11-24.
- Soderbergh, Steven, *Erin Brockovich* (Universal Pictures, 2000).
- Solomon, Andrew, 'The Myth of the 'Autistic Shooter'', *New York Times*, 12 October 2015, Opinion section, <<https://www.nytimes.com/2015/10/12/opinion/the-myth-of-the-autistic-shooter.html>> [accessed 1 December 2017].
- Spencer, Richard, 'Cold-hearted loner diagnosed as autistic', *Telegraph*, 21 April 2007 <<https://www.telegraph.co.uk/news/worldnews/1549284/Cold-hearted-loner-diagnosed-as-autistic.html>> [accessed 9 May 2018].
- Squier, Susan Merrill, *Liminal Lives: Imagining the Human at the Frontiers of Biomedicine* (Durham NC: Duke University Press, 2004).
- Stage, Zoje, *Bad Apple* (London: Bantam Press, 2018).
- Stanford, Peter, 'I spy with my little eye...someone on the spectrum', *Telegraph*, 23 September 2014 <<https://www.telegraph.co.uk/education/educationnews/11113540/I-spy-with-my-little-eye...-someone-on-the-spectrum.html>> [accessed 21 May 2018].
- Stern, Marlow, "'We Need to Talk About Kevin': Do Inherently Evil Kids Exist?", *Daily Beast*, 10 December 2011 [updated 13 July 2017] <<https://www.thedailybeast.com/we-need-to-talk-about-kevin-do-inherently-evil-kids-exist?ref=scroll>> [accessed 5 December 2019].
- Stieg Larsson, *The Girl who Played with Fire*, trans. by Reg Keeland, (London: MacLehose Press, 2009).
- Stieg Larsson, *The Girl with the Dragon Tattoo*, trans. by Reg Keeland, (London: MacLehose Press, 2008).
- Stone, Michael H., *Healing the Mind* (New York: W. W. Norton & Company, 1997).
- Stone, Michael H., *The Anatomy of Evil* (Amherst: Prometheus Books, 2009).
- Stone, Oliver, *JFK* (Warner Brothers, 1991).
- Strooper, Bart De, 'Dementia is too big a problem to walk away from – for Pfizer or any of us', *Guardian*, Opinion section, 11 January 2018, <<https://www.theguardian.com/commentisfree/2018/jan/11/dementia-pfizer-alzheimers-research-big-pharma>> [accessed 11 January 2018].

- Swerling, Gabriella, 'Autistic hacker Jack Chappell 'had been exploited'', *The Times*, 19 December 2017 <<https://www.thetimes.co.uk/article/autistic-hacker-jack-chappell-had-been-exploited-kx8vvh829>> [accessed 20 May 2018].
- Switzer, Kaye, and Sandia Spreckman, *Judge Judy* (CBS, 1996-present).
- Taylor, Paul A., 'Hackers: Cyberpunks or microserfs', *Information, Communication & Society*, 1.4 (1998), 401-419.
- Tenbergen, Gillian and others, 'The Neurobiology and Psychology of Pedophilia: Recent Advances and Challenges', in *Frontiers of Human Neuroscience*, vol. 9 (2015).
- The Aging Brain Initiative, MIT, <<https://picower.mit.edu/about/aging-brain-initiative>> [accessed 12 February 2020].
- Theodoulou, Georgios, 'Causes of Dementia' in *ABC of Dementia*, ed. by Bernard Coope and Felicity A. Richards, pp.5-9.
- Thomas, Ronald, *Detective Fiction and the Rise of Forensic Science* (Cambridge: Cambridge University Press, 2004).
- Thompson, Derek, 'Mass Shootings in America Are Spreading Like a Disease', *The Atlantic*, 6 November 2017 <<https://www.theatlantic.com/health/archive/2017/11/americas-mass-shooting-epidemic-contagious/545078/>> [accessed 8 March 2020].
- Thunberg, Greta, 2 April 2019, Facebook <<https://www.facebook.com/gretathunbergsweden/posts/today-is-autismawarenessday-proud-to-be-on-the-spectrumand-no-autism-as-well-as-802407010127121/>> [accessed 24 February 2020].
- Timimi, Sami, and Brian McCabe 'What Have We Learned From The Science of Autism?' in *Re-thinking Autism: Diagnosis, Identity and Equality*, ed. by Katherine Runswick-Cole, Rebecca Mallett and Sami Timimi (London: Jessica Kingsley Publishers, 2016), pp. 30-48.
- Tougaw, Jason, *The Elusive Brain: Literary Experiments in the Age of Neuroscience*, (New Haven, Yale University Press, 2018).
- Toynbee, Polly, 'The writer Katherine Whitehorn would rather die than live like this', *Guardian*, 29 May 2018, Opinion section, <<https://www.theguardian.com/commentisfree/2018/may/29/assisted-dying-katharine-whitehorn-alzheimers>> [accessed 16 July 2018].
- Triggle, Nick, 'What is the contaminated blood scandal?' *BBC*, 14 June 2019 <<https://www.bbc.co.uk/news/health-48596605>> [accessed 12 February 2020].
- Trump, Donald J., Twitter, June 30 2013, <<https://twitter.com/realdonaldtrump/status/351119135830327298>> [accessed 9 August 2019].
- van Heugten, Antoinette, *Saving Max* (Toronto: Harlequin, 2010).

- Vidal, Fernando and Francisco Ortega, *Being Brains: Making the Cerebral Subject* (New York: Fordham University Press, 2017).
- Vidal, Fernando, 'Brainhood, anthropological figure of modernity', *History of the Human Sciences*, 22.1 (2009), 5-36.
- Wachowskis, *Sense8* (Netflix, 2015-2018).
- Wachowskis, *The Matrix*, (Warner Brothers, 1999).
- Weeks, Jeffrey, *Invented Moralities: Sexual Values in an Age of Uncertainty* (Cambridge: Polity Press, 2007).
- Welner, Michael, 'Cho Likely Schizophrenic, Evidence Suggests', *abcnews*, 17 April 2007 <<https://abcnews.go.com/Health/VATech/cho-schizophrenic-evidence-suggests/story?id=3050483>> [accessed 22 May 2018].
- Welsh, Irvine, *Trainspotting* (London: Vintage, 1994).
- Whitehouse, Peter J., 'A Clinical Neuroscientist Looks Neuroskeptically at Neuroethics in the Neuroworld', in *The Neuroscientific Turn*, ed. by Melissa M. Littlefield Littlefield and Jenell M. Johnson, (Ann Arbor: University of Michigan Press, 2012), pp.199-215.
- Wilde, Oscar, *The Picture of Dorian Gray* (London: Penguin, 2003),
- Wimmer, Kurt, *Equilibrium* (Miramax, 2002).
- Wolf, Dick, *Law & Order* (NBC, 1990-2010).
- Woollaston, Victoria, 'Recipe for a serial killer? Childhood abuse, autism and head injuries are more common in murderers, study claims', *Daily Mail*, 21 May 2014, Science section <<https://www.dailymail.co.uk/sciencetech/article-2634865/Recipe-serial-killer-revealed-Childhood-abuse-autism-head-injuries-common-murderers-study-claims.html>> [accessed 1 January 2017]
- Woollaston, Victoria, 'The real-life Limitless pill? Drug helps adults learn as fast as children by making the brain more 'elastic'', *Daily Mail*, 31 May 2014, <<http://www.dailymail.co.uk/sciencetech/article-2593268/The-drug-helps-adults-learn-fast-children.html>> [accessed 26 February 2018].
- Worthington, Heather, *Key Concepts in Crime Fiction* (New York: Palgrave Macmillan, 2011).
- Wurtzel, Elizabeth, *Prozac Nation: Young and Depressed in America a Memoir* (London: Quartet Books, 2001).
- Yirmiya, Raz and Inbal Goshen, 'Immune modulation of learning, memory, neural plasticity and neurogenesis', *Brain, Behaviour, and Immunity*, 25.2 (2011), 181-213.
- Zeilig, Hannah, 'Dementia as Cultural Metaphor', *The Gerontologist*, 44.2 (2013), 258-267.