From Pathology to Transformation: A Technophilosophy of Addiction

MYLONAS, NIKOLAOS

From Pathology to Transformation:

A Technophilosophy of Addiction

Nikolaos Mylonas

000715577

Supervisors: Professor Gerald Moore

Dr Jesse Proudfoot

Thesis Submitted to Durham University for the title of Doctor of Philosophy

Department: Modern Languages and Cultures

2022

Abstract

Despite advances in the disciplines of psychology and neuroscience, contemporary addiction theories often provide contradicting perspectives on the phenomenon. The dominant view among the neuroscientific and the medical communities is that addiction is a brain-disease caused by the individual's chronic exposure to the effects of psychoactive substances. However, critics have challenged the premise that addiction is a disease, while emphasizing the role played by the environment in the genesis of the problem. Although both views have their merits, the persistent dualism 'individual-environment' creates a theoretical chasm that often seems unbridgeable. This dissertation seeks to address this problem by introducing a third term in the dualist conceptualisation of addiction. More specifically, I aim to investigate the ways the use and misuse of psychotropic substances and other potentially addictive activities constitute forms of engagement with technical artefacts that mediate the relationship between the individual and the environment. Drawing from Bernard Stiegler's work, I argue that the evolution of our species was influenced by the use of substances and other potentially addictive behaviours that transformed our mind and body. Through a close reading of Canguilhem's *The Normal and the Pathological* (1966) and Stiegler's symptomatology of contemporary societies, I conceptualise addiction as a case of pathological automation of the psychical apparatus, which is produced by the individual's engagement with the psychotropic properties of technical artefacts in the context of environmental pressures that make addiction a dominant mode of relating to the world. I then proceed to explore questions of recovery by examining the relationship between autonomy and agency in addiction, the practices of Alcoholics Anonymous as a form of automation of the mind, and the potential of artistic endeavours as technologies of individual and collective recovery. The study concludes with a consideration of the promises and the limitations of a technophilosophy of addiction.

Contents

Acknowledgments

It is often said that a PhD research project is an exercise in solitude. However, during the completion of this PhD dissertation I was extremely fortunate to be a member of various groups of people that advanced my thinking, stimulated my curiosity, and challenged deeply established beliefs. Professor Gerald Moore was a generous, understanding, and supportive supervisor whose work and method inspired a lot of the ideas presented here. I am also very grateful to Dr Jesse Proudfoot for offering insightful and thought-provoking comments on my first full draft. My mentor, Professor Manolis Dafermos, carefully read and provided feedback on various versions of the chapters and the first full draft. As it will be rendered obvious from the very start, the thought and vision of Bernard Stiegler was the intellectual framework for the argument presented here. I was fortunate to meet Bernard and his team in the Paris-based *Institut de recherche et d'innovation* during a funded secondment in 2019. There, we discussed about some aspects of my work, and I participated in the Internation Project that he led until his untimely death in 2020. Professor Morten Nissen offered an excellent combination of academic hospitality and knowledgeable feedback in the seminars organised by him and his collaborators ('Text, Addiction and Care' in February 2021 and 'Texts as technologies of care and understanding' in August 2021). My discussions with Dr Zoe Zontou on the therapeutic aspects of social theatre were very beneficial for my argument.

Sections from Chapter 1 and Chapter 5 were presented in the conference 'Philosophy of Life – The Utopias of Politics, Anthropology and Biology' organised by Durham University in 2018. An earlier draft of Chapters 5 and 8 were presented in the conference "Crisis in Contexts" organised in 2019 by the South and Central Europe and Middle East section of the International Society for Cultural-Historical and Activity Research (ISCAR) and published in its proceedings. Sections from Chapter 4 were presented in the Fifth Annual Conference of the Centre for the Study of Global Ethics, organised in 2019 by the University of Birmingham. Subsequent drafts have therefore benefited from the comments of audience members, participants and editors.

This thesis was funded under the Doctoral Studentship Scheme of Durham University. My secondment in Paris as part of the Real Smart Cities Project (H2020 MSCA-RISE no.777707) funded by the European Union in September 2019 was also very fruitful. The University of Durham's Centre for Culture and Ecology provided excellent opportunities for interdisciplinary reading groups and academic events.

I greatly benefited by my collaboration and friendship with Prof. Moore's PhD student Rasmus Sandnes-Haukedal, who provided insightful comments on the arguments presented here.

During the years in Durham, we spent countless hours discussing various aspects of our dissertations. Similarly, a debt of recognition is also owed to other students of Prof. Moore who were helpful in this long journey: Jack Coopey, Pierluca D' Amato, Benjamin Herm-Morris, and Marco Pavanini. Special thanks also to Stiegler's collaborators who are also original thinkers in their own right, Anne Alombert, Giacomo Gilmozzi and Daniel Ross.

My friends Artemis Christinaki, Fay Kolokytha, George Kalabalikis, Areti Balkoni, Katerina Magka were always there for me. Towards the end of my PhD project, I worked in various positions in different organisations. I would like to thank the nursing staff at Willows Psychiatric Intensive Care Unit at Cheadle Royal Hospital at Manchester, UK, the social care team at L' Arche UK, and the Rough Sleepers Drugs and Alcohol Team of the Greater Manchester Mental Health NHS Foundation Trust in Salford, UK. I am very grateful to all the service users whose stories and struggles motivated me to complete this thesis.

I would also like to thank my family for their unconditional support and inspiration all these years. Especially my mother, Vasiliki Delivoria, who made my education and wellbeing a priority.

Finally, this dissertation would not have been possible without the help of my partner. Allegra is everything one could hope for: an inexhaustible source of encouragement, an intellectual companion, and an attentive reader. This work is dedicated to her.

Needless to say, any mistakes are my own.

Abbreviations

NP Canguilhem, Georges. 1991[1966]. *The Normal and the Pathological* (New York: Zone Books)

KL ———. 2008[1965]. *Knowledge of Life* (New York: Fordham University Press)

OPI Cocteau, Jean. 1990[1930]. *Opium: The Diary of His Cure*, trans. by Margaret Grosland (London & Chester Springs: Peter Owen)

OG Derrida, Jacques. 2016[1967]. *Of Grammatology*, trans. by Gayatri Chakravorty Spivak (Baltimore: Johns Hopkins University Press)

BT Heidegger, Martin. 1978. *Being and Time,* trans. by John Macquarrie & Edward Robinson (London, England: Blackwell)

CD Freud, Sigmund 2001[1930]. 'Civilization and its Discontents', in The *Standard Edition* of The Complete Psychological Works of Sigmund Freud, vol. 21, trans. by James Strachey, (London: Vintage), pp. 64–146

OLD Glare, P. G. W. 1968. *Oxford Latin Dictionary* (Oxford: Clarendon)

ORG Goldstein, Kurt. 1995[1934]. *The Organism: A Holistic Approach to Biology Derived from Pathological Data in Man* (New York: Zone Books)

ST Lem, Stanisław. 2014[1964]. *Summa Technologiae*, trans. by Joanna Zylinska (Minneapolis, MN: University of Minnesota Press)

LSJ Lindel, H. G., Scott, R., Jones, H. S., McKenzie, R., Thesaurus Linguae Graecae Project. (2011). The online Liddell-Scott-Jones Greek-English lexicon. (Irvine, CA: University of California, Irvine) <http://stephanus.tlg.uci.edu/lsj/#eid=111771> [accessed 9 November 2021]

ETO Simondon, Gilbert. 2017[1958]. *On the Mode of Existence of Technical Objects*, trans. by Cecile Malaspina and John Rogove (Minneapolis, MN: University of Minnesota Press)

IND Simondon, Gilbert 2020[2005]. *Individuation in the Light of Form and Information* (Minneapolis, MN: University of Minnesota Press)

TT1 Stiegler, Bernard. 1998[1994]. *Technics and Time Volume 1: The Fault of Epimetheus,* trans. by Richard Beardsworth & George Collins (Stanford, California: Stanford University Press)

TT2 ———. 2009[1996]. *Technics and Time Volume 2: Disorientation,* trans. by Stephen Barker (Stanford, California: Stanford University Press)

AO ———. 2009[2003]. *Acting Out*, trans. by D. Barison, Daniel Ross, and Patrick Crogan (Stanford, California: Stanford University Press)

CPE ———. 2010[2009]. *For a New Critique of Political Economy*, trans. by Daniel Ross (London: Polity)

POD ———. 2011. 'Pharmacology of Desire: Drive-Based Capitalism and Libidinal Dis-Economy', *New Formations*, 72.72: 150–61 <https://doi.org/10.3898/newf.72.12.2011>

DD1 ———. 2011[2004]. *The Decandence of Industrial Democracies: Disbelief and Discredit Vol.* 1 trans. by Daniel Ross and Suzanne Arnold (London: Polity)

TC ———. 2010[2008]. *Taking Care of the Youth and the Generations*, trans. by Stephen Barker (Stanford, California: Stanford University Press)

SA ———. 2012. 'Société addictogène, social engineering et écologie relationnelle', in *Prévenir et Traiter les Addictions Sans Drogue: Un Défi Social,* ed. by Jean-Luc Vénisse and Marie Grall-Bronnec (Elsevier Masson), pp. 17–21

PFN ———. 2013. *Pharmacologie du Front national: Suivi du Vocabulaire d' Ars Industrialis* (Paris: Flammarion)

DD2 ———. 2013[2006]. *Uncontrollable Societies of Disaffected Individuals: Disbelief and Discredit, Volume 2,* trans. by Daniel Ross (London: Polity)

OP ———. 2013[2010]. *What Makes Life Worth Living: On Pharmacology,* trans. by Daniel Ross (London: Polity)

DD3 ———. 2014[2006]. *The lost Spirit of Capitalism: Disbelief and Discredit, Volume* 3 trans. by Daniel Ross (London: Polity)

SM1 ———. 2014[2004]. *Symbolic Misery Vol. 1. The Hyper-industrial Epoch,* trans. by Barnaby Newman (London: Polity)

SM2 ———. 2015[2005]. *Symbolic Misery Vol. 2. The Katastrophē of the Sensible*, trans. by Barnaby Newman (London: Polity)

AS ———. 2016[2015]. *Automatic Society Volume 1: The Future of Work*, trans. Daniel Ross (London: Polity)

PS ———. 2017. 'The Proletarianization of Sensibility', *Boundary 2*, 44.1, trans. by Arne De Boever: 5–18 <https://doi.org/10.1215/01903659-3725833>

NA ———. 2018. *The Neganthropocene*, trans. by Daniel Ross (Open Humanities Press)

AD ———. 2019[2016]. *The Age of Disruption: Technology and Madness in Computational Capitalism,* trans. by Daniel Ross (London: Polity)

NAM ———. 2021a. 'Elements for a Neganthropology of Automatic Man', *Philosophy Today,* 65.2: 241–264

TT4 ———. 2021b. *Technics and Time 4,* trans. by Daniel Ross (Unpublished draft)

IJ Wallace, David Foster. 2006[1996]. *Infinite Jest* (London: Abacus)

PR Winnicott, Donald W. 2005[1971]. *Playing and Reality* (London & New York: Routledge)

To Allegra

Chapter 1: Towards a technophilosophy of addiction

Let us enter into this relation.

—Blanchot (1992[1973]: 1)

1.1. Introduction

In her preface to the recent edition of a pamphlet titled 'Drugs, Brains, and Behavior: The Science of Addiction', initially published in 2007 by the US-based National Institute on Drug Abuse, its director, Nora D. Volkow, paints a picture that portrays a dramatic shift in how "scientists" study and treat drug use in our times, in comparison to the first decades of the 20th century. Volkow contends that:

> For much of the past century, scientists studying drugs and drug use labored in the shadows of powerful myths and misconceptions about the people with an addiction. When scientists began to study addictive behavior in the 1930s, people with an addiction were thought to be morally flawed and lacking in willpower. Those views shaped society's responses to drug use, treating it as a moral failing rather than a health problem, which led to an emphasis on punishment rather than prevention and treatment.
>
> Today, thanks to science, our views and our responses to addiction and the broader spectrum of substance use disorders have changed dramatically. Groundbreaking discoveries about the brain have revolutionized our understanding of compulsive drug use, enabling us to respond effectively to the problem (National Institute on Drug Abuse 2020: 2).

These paragraphs offer a range of interesting claims that showcase the ways in which a strand of contemporary addiction research understands its history. The general outlook portrayed here is that of a 'progress' from myth and prejudice to reason and science. Moreover, the starting point for the scientific investigation of addictive behaviour is located at some time during the 1930s in a cultural milieu that perceived addicted individuals as morally questionable and addiction as a problem of willpower. Because of this perception, the dominant approach to dealing with the predicament was oriented towards punishment instead of medical treatment. However, advances in neuroscience have brought a 'revolution' in how people understand drug use and abuse, leading to effective treatments. In other words, Volkow suggests that the changes in the ways people

perceive and treat addiction have been brought mainly by the progress in our understanding of the brain.

Despite the important discoveries regarding the multiple ways substance abuse and other addictive behaviours affect the brain, the debates that have dominated the scientific and public understanding of addiction, namely, whether addiction is a disease or a moral flaw, whether incarceration or specialist treatment is the best way to deal with it, and whether criminalization vs. decriminalization of substances is the most appropriate public policy, are far from resolved (Keis and others 2016: 244). While Volkow perceives accurately the important divide between the medical and the moral understanding of addiction, she describes a resolution that never happened.

Contemporary addiction science has not yet provided adequate answers to questions about the individual's responsibility and agency in addictive behaviours, which are at the core of the phenomenon and largely frame the way we approach it. Most importantly, despite claims to the contrary, available treatments continue to be challenged in terms of their effectiveness. More and more people become addicted to substances and behaviours, while a high number of those that receive treatment continue to relapse, with overdose episodes becoming a leading cause of death (Andersson, Wenaas & Nordfjærn 2019: 225; Handley, Ramsey & Flanagan 2018: 4). Behavioural scientists and clinicians have been publishing highly complex models of addiction in prestigious scientific journals, yet our answers to the most fundamental questions posed by the phenomenon remain as diverse and debatable as they were decades ago. In the field of addiction studies, according to Maia Szalavitz (2016: 2), 'we continue to recycle the same tired debates and enforce counterproductive criminalization strategies.'

One could identify multiple reasons for this situation. First, there is the problem of definition. Addiction continues to be defined in different ways from different points of view and it is difficult to achieve a consensus even within a discipline that studies addiction (e.g., psychology), not to mention between disciplines. Secondly, addiction research has reached a level of fragmentation and specialization to such an extent that theoretical formulation at the macro level becomes almost impossible, since research produced in one discipline (e.g., neurobiology), is often incomprehensible to other addiction researchers. Thirdly, the field of addiction studies remains infested with a persistent dualist view of the relationship between the individual and the environment that pervades most approaches of how people become addicted and how they recover. In some addiction models, the problem is framed in entirely individualist terms, mainly as a chronic relapsing brain disease (Koob 2011: 59), while in other theories (West 2001: 8) there is an emphasis on environmental stressors to which people cope with the use of addictive substances or behaviours. When the importance of environmental factors in the development of

and recovery from addiction is recognized (recently even by exponents of the brain-disease model; see Heilig et al. 2021: 2), the phenomenon is conceived in dualist terms that perceive the individual in a constant struggle for adaptation to environmental circumstances. More specifically, the argument posits that contemporary configurations of economy, politics and everyday life create the psychosocial conditions which in fact constitute addiction as a dominant form of adaptation to the existing environment (Alexander 2008: 63; Moore 2018: 202; Proudfoot 2019: 196). As Pearson puts it: 'Where drugs such as heroin and crack-cocaine are concerned, the most serious concentrations of human difficulty are invariably found huddled together with unemployment, poverty, housing decay and other social disadvantages' (Pearson 2001: 53; cited in Seddon 2006: 680). An environment that is addictogenic, leads people to addiction in their effort to adapt. Although these theories have their merits in identifying possible mechanisms of the transition from occasional use to addiction, their failure to grasp the complexity of the relationship between the individual and their environment, remains an important limitation that aggravates the theoretical fragmentation of addiction studies. Undoubtedly, dualisms in scientific research are not inherently problematic or unhelpful. However, in the case of addiction, the dualism 'individual-environment' creates an intellectual deadlock where each theory focuses on a specific aspect of the phenomenon, not considering that environments transform individuals and are transformed by them in unpredictable and non-linear fashion. Furthermore, they tend to attribute a 'reactive' function to substances and other addictive pursuits, considering them fundamentally as elements of a coping mechanism. People often use substances or get involved in other potentially addictive activities to effect more diverse changes to their mental states (to overcome boredom, improve their performance in various tasks, etc.) and not just to cope with adversity.

This dissertation seeks to address this problem by introducing a third term in the dualist conceptualisation of addiction as a relationship between the individual and the environment. As I will attempt to show, paradoxically, the introduction of a third term, instead of producing further fragmentation, provides the ground for a creative reorientation of addiction studies towards a more unified approach to the phenomenon. More specifically, I want to showcase the merits of perceiving the problem of addiction through the lens of *technics*, i.e., the study of addictive behaviours as an instance of our engagement with technical artefacts or objects. In order to understand why and how certain individuals become addicted to substances and other activities, it is important to consider what do these technical artefacts "do". In other words, I argue that we can overcome the dualist approach that dominates addiction studies by examining how substances and other technological artefacts mediate our relationship with the environment transforming our life, our communities and the world itself. Although, I will occasionally discuss other addictive

behaviours, the reader will notice that the thesis focuses primarily on substance use and misuse. This is partly due to the fact that the field of substance misuse remains the richest and most developed area of addiction studies, and partly because both my clinical and theoretical work are oriented towards drugs and alcohol problems.

On that note, it is worth explaining why, given that a variety of terms have been used historically as well as currently to conceptualise a 'problematic' habitual use of a certain substance (or a repetitive 'problematic' behaviour), I still choose to discuss these phenomena using the term 'addiction'. There are multiple reasons for this choice. Firstly, although empirical researchers might find the application of the word 'addiction' to describe a wide range of phenomena counterproductive, I claim that a general term (even at the price of imprecision) is necessary in order to provide a theoretical understanding of these behaviours so that their common elements can be illuminated. Secondly, as we will see further in the next chapter, the term 'addiction' is not inherently negative and can have positive connotations, which is important in distinguishing the psychological aspects of the experience of addiction. Other words that are frequently used to describe similar behaviours are not without their own limitations. The word 'dependence', which is often used interchangeably with addiction, refers to the physiological (and sometimes psychological) changes caused by a substance that make the person incapable to function without it. Although this is an essential aspect of many addictions, it does not apply to the so-called 'behavioural addictions' (gambling, online gaming, food). Moreover, 'dependence' relies on a strict Cartesian dualism of body and mind, while 'addiction' encompasses physiological, psychological and relational aspects of the phenomenon. Similarly, the term 'substance-use disorder', often preferred for its preciseness (i.e., cannabis-use disorder, alcohol-use disorder, etc.), adopts a biomedical approach which focuses primarily on the substance itself, while I intend to discuss the phenomenon from a historical perspective that sees individuals as they relate to their environment.

The proposed strategy for understanding addiction in a different way than its dualist alternatives might be termed technophilosophical. As I will attempt to show in the following chapters any account that ignores the important role that technics has in the formation and development of addictive behaviours is bound to return to the dualist conceptualisation of the phenomenon. I describe this role through the prism of Bernard Stiegler's philosophy of technology. For Stiegler, it is impossible to understand the course of human history without engaging with the question of its relationship with technical objects and technical systems. Likewise, it is equally necessary to theorize technicity as a fundamental aspect of every addictive behaviour. The argument is not complete with just a recognition that the addictive behaviour most of the times is executed by a technical artefact: the substance, the needle, the bottle, the electronic

device, etc. Instead, technics should be perceived in itself as a potentially addictogenic force, connecting inescapably the survival of the species with the possibility of addiction. In Stiegler's conceptualisation, technical artefacts, as exosomatic organs, support and supplement functions regarded as essential to and constitutive of human life—which means that even if we are not addicted to them, they certainly form a relationship of dependence. Research on the addictive potential of digital technological artefacts, which have colonized every aspect of our lives, continues to be one of the most flourishing areas of investigation (Mahapatra 2019). This line of work is informative and increasingly relevant for any attempt to examine the possibilities and impossibilities that technological transformations bring in contemporary societies. While this research is modelled on more traditional forms of addiction (drug and alcohol misuse), proceeding in the reverse direction, that of theorizing addiction from a technological perspective, seems fruitful in order to partially transcend the binary opposition between the individual and environment that has plagued addiction theory for decades.

1.2. Technical objects as 'inorganic organised beings'

Before we embark on proposing this non-dualist understanding of addictions from a technological perspective, it is important to introduce some key ideas of Stiegler's philosophy. Stiegler posits that, from its very beginning, philosophy has suppressed technics—conceptualised as *tekhnē*—in clear opposition to *epistēmē* (TT1: 1). This divide emerged in the political context of Ancient Greece, in which philosophy is understood as antagonistic to rhetoric and logography, since the Sophist uses *logos* in instrumental terms disregarding the quest for the truth. From this point onwards, technical knowledge is considered inferior to philosophical knowledge. In the first volume of his opus magnum, *Technics and Time,* Stiegler contends: 'Technics is the unthought' (TT1: x). Attempting to overcome this lacuna, he examines closely theories of technical systems (especially those of Bertrand Gille 1986: viii, and Gilbert Simondon 2017[1958]) that indicate the difference in speed between cultural evolution and technical evolution. More specifically, technical systems undergo a faster evolution than cultural and social systems (TT1: 15). Following this line of research, Stiegler goes on to propose a theory not only of technical evolution but of human evolution in general considered through the prism of technics, an endeavour that made necessary a critical engagement with Charles Darwin's inquiry into evolutionary mechanisms.

Despite the unprecedented progress his contribution has facilitated in the understanding of human and other forms of life, there is an increasing consensus that the evolution of living organisms is far more complex than is presumed in Darwin's theory. From a model that puts

emphasis on the adaptation of the organism (and eventually the species through natural selection) to the demands posed by the environment, we move into a recognition that living organisms not only modify their environment but also their impact on the environment has a feedback effect on how they produce new forms of life (both ontogenetically and phylogenetically). A theory stemming from this different perspective has been termed the 'niche construction theory' (Odling-Smee and others 2003: 44), referring to the process through which organisms modify selection pressures by producing changes to their environments at specific moments in space and time ('perturbational niche construction') and by changing their location exposing themselves to new conditions ('relocational niche construction'). As Flynn and others (2013: 297) put it: 'The niche construction perspective in evolutionary biology contrasts with the conventional perspective by placing emphasis on the capacity of organisms to modify environmental states.' The notion of feedback is very important in understanding this process. Niche construction theory complicates the lines of causation in evolution by showing how selection pressures lead organisms to cause environmental changes, and environments that are actively modified by organisms lead to further changes in the evolutionary course of these organisms (Laland and others 2016: 195). Niche construction causes changes in the evolution of the species by ecological and genetic inheritance (Aaby & Ramsey 2019: 7). Ecological inheritance refers to the environmental conditions that an organism is born into while genetic inheritance refers to the process where organisms produce environmental changes (e.g., birds building a nest and spiders weaving a web) without using already existing templates for their constructions (Aaby & Ramsey 2019: 7).

Bernard Stiegler's criticism of the strictly Darwinian view and the versions that followed, is less about their truth than their incompleteness (Moore 2013: 18). For Stiegler, drawing on biological references, most notably the work of biophysicist Alred Lotka (1945), genetic evolution accounts for only half of the story regarding what constitutes humanity (TT1: 194). He claims that there are three genres of 'being': the inorganic beings studied by natural sciences, the organised beings studied by biology, and the 'inorganic organised beings' or technical objects (TT1: 17). Thus, to the processes of phylogenesis (evolution of the species) and ontogenesis (development of the organism), Stiegler adds the process of 'epiphylogenesis', which refers to the interaction and co-constitution of the human and the technical as evolutionary forces. In this sense, the species *Homo sapiens* is an outcome of a long evolutionary process that involves the supplementation of a pre-technical animal by technics. As Stiegler puts it: 'Humans are prosthetic beings, without qualities' (TT2: 2). This prostheticity of the human should, moreover, not be conceived as an instrumental use of an external object by an already complete being. Instead, 'the prosthesis is not

a mere extension of the human body; it is the constitution of this body qua "human"' (TT2: 152–3).

Stiegler's conceptualisation of technics is inspired by the logic of the 'supplement' as expressed in Derrida's *Of Grammatology* (OG: 144). In this work, Derrida discusses at length Rousseau's argument that humanity has been corrupted by civilization. Derrida's aim is to challenge Rousseau's sharp distinction between the completeness of human 'Nature' as opposed to the corrupting effects of civilization (OG: 157) indicating that the supplement is already inscribed within the lack that it supplements. If something is supplemented by something else, it cannot be conceived as already complete.

The supplement of technics, far from merely adding to a given entity, constitutes the entity as such. Technics is a constitutive element in this relationship between human species and the environment. The adjective 'constitutive' here must be understood literally. Technics, by providing mechanisms of extending or replacing biological capacities of our species, produces changes to our biology and our environment, initiating at the same time transformational processes for both of them. Stiegler's position is echoed by other scholars who have theorised how *Homo sapiens* has evolved through creating new or modifying already existing technical artefacts with which they transform both themselves and the environment, making their changed selves and environment agents of further transformations (Ihde & Malafouris 2019: 195). Stiegler (AD: 96) has termed this process *exosomatization*, drawing from Lotka (1945). The latter used the concept of 'exosomatic elements' to describe tools and artefacts that human beings use to manipulate various forms of energy present in their environment. These 'exosomatic elements' are opposed to the 'endosomatic' organs such as the brain, the eyes, the hand, etc. Lotka understood that speed here is of crucial importance:

> In place of slow adaptation of anatomical structure and physiological function in successive generations by selective survival, increased adaptation has been achieved by the incomparably more rapid development of 'artificial' aids to our native receptor–effector apparatus, in a process that might be termed exosomatic evolution (Lotka 1945: 188).

The neuroarchaeologist Lambros Malafouris has described a similar process as 'creative material engagement' (2013: 207), which he understands as a constant development of 'new varieties of material forms' (2014: 144) generated by the interaction of cognitive faculties and physical capabilities with material objects. The theory of material engagement might give an air of 'human exceptionalism' and appears as introducing a radical schism in evolutionary history. As Idhe and Malafouris (2019: 197) contend: 'of course, to various degrees all animals are niche constructors and some of them are prolific users of tools.' However, from this perspective humans appear to

be the only species that amplified the interactive relationship between tools and their biological makeup. The important difference would be that, in other animals, technology use is not cumulative. That is, it is not carried across generations. This is also related to the fundamental position in Stiegler's later work (TC: 170) that what is generally understood as 'human being' is the animal which has intermittently—and only intermittently—the capacity to be *not-inhuman*, denoting the possibility that the 'human world' can always be and indeed predominantly is inhuman (Stiegler TT4: 14), and that 'human beings' are '*always susceptible'* to revealing themselves to be inhuman-beings. It is worth noting that in the original French text, Stiegler uses the term 'homme' in an effort to create proximity with the biologically oriented word *Homo* instead of human, a term that in his vocabulary is reserved as a promise of non-inhumanity. Although Stiegler's distinction between 'human' and 'not-inhuman' has its merits in indicating the limits of our common understanding of 'humanity', I choose to continue to use the term 'human' for three reasons. First, Stiegler's concept of the 'not-inhuman' entails the risk of eventually 'de-humanizing' any behaviour related to death drive and automaticity, suggesting that we are 'not-inhuman' only when we engage in 'higher', sophisticated pursuits. It is difficult to imagine how this cannot be interpreted as a form of politically problematic elitism. Secondly, it is possible to use the term 'human' in order to refer to the species *Homo sapiens* and still be aware of its limitations as indicated by the recent discourses on transhumanism and posthumanism. Designating the animal *Homo sapiens* as 'human' does not deny that the human organism has the capacity to act in extremely inhumane ways. Thirdly, given my heavy reliance on concepts of evolutionary history, constant use of the term 'intermittently not-inhuman' would make the argument difficult to follow.

For Stiegler, it is this singular relationship between the biological substrate and technics that distinguishes the human genus from other animals, constituting technics an *anthropogenetic* force. Although all living organisms create interactive exchanges with material objects of their milieu, only humans make these materialities part of their living processes. Inert matter, such as technical artefacts, functions as a critical 'interface through which the human *qua* living matter enters into relation with the milieu' (TT1: 49). Thus, we can illustrate technics as a necessary part of the complex organisation of human life which, at the same time, makes the latter possible without becoming assimilated to the biological structure of the living organism. Hence, the well-known definition of technics by Stiegler as the 'continuation of life by means other than life' (TT1: 50).

This distinction accounts for both the differences one sees between the material engagement of the human species and that of other animals in the synchronic level, and the differences in the evolutionary pathways of either of them, since technical systems affect selection

pressures (Sterelny 2012: 33). I mentioned earlier that technicity does not only allow the development of niche-constructing activity by humans but also facilitates their transformation (which can be positive or negative), changing processes of human life as in a feedback mechanism.

Technical artefacts do not simply produce possibilities for the development, the expansion and the transformation of human life. In a strikingly different modality from the use of tools by other animals, technics constitutes a form of memory. The construction of nests, hives and mounds by animals is often as impressive in its perfection, harmony, and functionality as the most recent advances in the field of architecture. Although other species are hypothesized to have some form of cultural transmission that acts as an evolutionary force, human cultural transmission is different in its ability to be simultaneously cumulative and subject to modification (Tennie and others 2009: 2405). In other words, every generation of our species inherits cultural and technical knowledge which it then modifies to suit its contemporaneous needs. The relationship between technical evolution and the cultural leads Stiegler (SM2: 125) to frame his project as a 'general organology' encompassing three different types of organs: the physiological organs, the artificial organs and social organisations. Stiegler is inspired by Simondon, a 20th century philosopher and psychologist whose research led to the development of an entire theoretical apparatus aiming to understand the relationship between human beings and what he termed 'technical objects'. Following Simondon, Stiegler uses the term 'transductive' to describe the relationships between the groups of 'organs', meaning that they constitute each other as parts of a relationship, being subject to continuous defunctionalizations and refunctionalizations. Physiological organs lose certain functions and acquire new ones as they interact with technical organs, while the latter are also transformed in the multiple ways social organisations negotiate their impact.

The human technical system, in its association with the social system, provides the possibility of exteriorization of individual experience. In contrast with other animals, the human species has the advantage of transmitting the experiences of every individual to the following generations, regardless whether they are genetically related or not. As Moore (2013: 25) explains: 'Rather than begin from scratch with every generation, we are born into a technical symbolic order whose past we adopt as our own through participation in tradition.' The physician in the 21st century can acquire skills and knowledge in a, *mutatis mutandis*, small number of years studying medicine compared with the thousands of years it took for these to become part of humanity's heritage. This is one example of the process of *epiphylogenesis* (TT1: 176) which exteriorises in a transmissible form the accumulated individual and collective experience. Thus, it can be said that human life is organised according to three types of memory: a) the type of genetic, biological memory inscribed in the human DNA, b) epigenetic memory, which corresponds to the impact

that experience has on the individual, and c) epiphylogenetic memory (TT1: 177) constructed by the evolutionary engagement of the human species with technical artefacts. It is worth noting, however, that although Stiegler used this tripartite structure to describe the relationship between memory and evolution in the early phase of his work, he does not retain it in his later works, suggesting that he might have found limitations in its utility.

The Stieglerian understanding of human evolution and its co-constitutive relationship with exosomatic organs finds an early and unlikely predecessor in the thought of the science fiction writer Stanisław Lem[1]. Lem, the author of the novel *Solaris* (1961) among others, wrote a treatise in the sixties on the philosophy of technology. With the title *Summa Technologiae* (2013[1964]), an allusion to Aquinas' *Summa Theologiae,* Lem proceeds to discuss such diverse topics as biology, cybernetics and virtual reality (which he terms 'phantomatics'). Lem's definition of technological artefacts is particularly close to the idea that technical objects enhance, transform, and replace biological mechanisms: 'Every technology is actually an artificial extension of the innate tendency possessed by all living beings to gain mastery over their environment, or at least not to surrender to it in their struggle for survival' (ST: 4). Interestingly, at the core of his argument lies the necessity of understanding human life in light of two evolutions (ST: 11): the biological and the technical.

A question which almost immediately arises concerns the causality dilemma: 'Who causes whom? Does technology cause us or do we cause it?' (ST: 12). Lem attempts to approach this question by examining the similarities and differences of these two types of evolution. An important similarity is that new forms of both biological and technical development undergo a process of increasing effectiveness—beginning from being barely effective to highly sophisticated—until they reach a peak. From then a process of decline and obsolescence follows, caused by new biological or technical variations (ST: 15–17). An example of this process is how the automobile was initially slower than a horse-driven stagecoach, until it managed to overcome the stagecoach and create further variations such as the bus or the bulldozer. Another similarity that Lem identifies relates to the significance that imitation exhibits in both types of evolution. Both behaviours of living organisms and types of technical artefacts often originate from imitation of other behaviours or mechanisms. As far as differences are concerned, Lem (ST: 19) contrasts biological evolution as being driven by Nature [*sic*] with technical evolution being driven by 'Man' [*sic*]. This conceptualisation leads Lem to an important conclusion which he articulates as 'perhaps the biggest difference': 'bioevolution is beyond all doubt an amoral process, which is something we cannot say about technical evolution' (ST: 19).

[1] An observation made also by Lem's translator Joanna Zylinska (xii) in her introduction to *Summa Technologiae.*

Lem's perspective on the ethical aspect of the relationship between humanity and technology is neither one of demonization nor of exuberant optimism. Right from the start he admits: 'there are few technologies that could not be classified as double-edged' (ST: 4). In an observation reminiscent of the dynamic interaction of the social and technical system described by Stiegler, Lem claims that moral evaluations of technological developments depend on the 'stage of development of a given civilization and on its social system' (ST: 29). However, earlier in the same page he expresses a less neutral assessment of technology by suggesting that 'technoevolution brings more evil than good, with man [*sic*] turning out to be a prisoner of what he himself has created' (ST: 29).

A similar view regarding the ambivalent nature of how humanity engages with technical artefacts is found in Freud's *Civilization and Its Discontents*, where he claims:

> With every tool man [*sic*] is perfecting his own organs, whether motor or sensory, or is removing the limits of their functioning…Man has, as it were, become a prosthetic god. When he puts on all auxiliary organs, he is truly magnificent: but those organs have not grown on him and they still give him much trouble at times (CD: 42).

Interestingly, it is in the same book that Freud discusses briefly 'intoxication' as a method of influencing the psychic apparatus (CD: 23), and this constitutes one of the few instances that Freud mentions the possibility of addiction following the consumption of certain substances. However, it seems that he remains oblivious to the fact that these artificial ways of regulating, augmenting and sedating the 'motor and sensory organs' of human beings, are also prosthetic, technologically produced, extensions of living processes: tools to perfect our own organs but with a potential to cause us 'much trouble' (CD: 42).

Drawing from these theoretical articulations portraying the relationship between technical artefacts and human life, I contend that 'technics is the unthought' with regard to theories and treatments of addiction. Perceiving the relatively recent proliferation of addictive behavioural patterns in our engagement with digital technologies (smartphone use, increased time of screen-exposure, related developmental disorders) as an indication of the unprecedented ways that technology has changed our lives is misguided. Instead, our co-constitutive encounter with technics has always been a transformative force of human life, entailing the possibility of addiction.

1.3. Psychotropic prostheticisation and addiction

Following Stiegler's theory, I consider it important, for a renewed understanding of addiction, to see how the use of substances and other potentially addictive behaviours can be seen as an example

of technical evolution impacting human evolution. I refer to this impact as a process of 'psychotropic prostheticisation', a term which attempts to conceptualise the use of technical artefacts for the neurochemical regulation of individual states of mind and behaviours as part of our evolutionary present and past.

Regarding, for example, substance ingestion there is a general agreement that consumption of psychoactive molecules (from psychedelic mushrooms to sugar) is a practice that has accompanied humanity in its totality in every place on Earth throughout history (Hagen & Tushingham 2019: 471). From the intoxication of shamans in the religious practices of the prehistoric age to the intoxicated symposia of Ancient Greece, and from opium-smoking in the Chinese empire-dens of the nineteenth century to the use of Fentanyl in some crisis-ridden deindustrialized cities of the USA, humans seem to find sophisticated ways to chemically modify their mode of experiencing. There is evidence that this relationship started even before the development of agriculture as proposed in the 'beer before bread' hypothesis, which posits that the primitive manufacture of alcoholic beverages was not a by-product of agriculture but its original aim (Slingerland 2021: 8). Cannabis's medical and psychoactive value, for example, is speculated to have been evident to early humans living in ancient Central Asia (Clarke & Merlin 2013: 1). Paleontological evidence demonstrates the prehistoric use of seeds coming from the plant *Papaver Somniferum*, otherwise known as opium poppy (Merlin 2003: 298). It is estimated that the seeds were stored in small grass woven baskets for more than 4000 years. However, even this chronology seems rather recent, given the suggestion that a burial cave with a man's skeleton possibly dated around 60,000 BC in what is now Iraq contained medicinal plants including a stimulant (Guerra-Doce 2015: 97).

As far as the purposes of this early drug use are concerned, the main hypothesis remains that psychotropic substances were used for: a) their medicinal, healing value; b) their potential for increasing stamina and countering fatigue; c) the production of altered states of consciousness; and d) recreational intoxication (Hagen & Tushingham 2019: 484). It is suggested, for instance that Stone Age art was accompanied by the use of hallucinogens and opium (Hajar 2016: 42). Crocq (2007: 355) has claimed that our ancestors were particularly interested in identifying the more potent psychoactive compounds of the various plants and perfecting routes of drug administration. Substances that induced experiences of dissociation were instrumental in the development of shamanism and thus were pivotal in the creation one of the most ancient hierarchical structures in the history of humanity. The shaman was not only the one who exercised authority by drug-induced visions and supposed communication with spiritual forces. He also was responsible for the distribution and administration of religious experiences (and of drugs),

constituting a precursor of the priest and creating a milieu for the birth of organised religion. It can be speculated that the line that begins with the shaman goes through the priest and ends with the modern-day physician is in parallel with the line that connects ancient hallucinogens with opioids.

The historian Daniel Lord Smail suggests that a more accurate narrative of the history of humanity can be constructed based on the interplay between human culture and the human brain (Smail 2008: 2). His *neurohistorical* approach could be summarized in the sentence 'culture is made possible by the plasticity of human neurophysiology' (Smail 2008: 154). More specifically, Smail argues that to a great extent the evolution of the genus *Homo* can be explained in terms of the various ways with which its members attempted to alter their states of mind and mood. The vehicles for such pursuits are the various neurochemical substances that exist in the brain from the early historical stages of our species until today. Equally fundamental in these processes is the ability of nerve cells to reorganise their synapses, commonly referred to as neuroplasticity. Serotonin, dopamine, epinephrine, norepinephrine, oxytocin, etc., all play a central role in how human beings behave, think, and feel. Understanding the importance of these processes should not be translated as the reduction of every mental or behavioural process to a sum of interacting neurochemicals. Smail makes rather clear that even though many of these chemicals are shared by other animals 'in a sense, each of them has its own natural history' (Smail 2008: 113) and its function remains an outcome of the complex interaction of neurophysiology and historical processes. In this regard, it is worth noticing that the tendency to alter states of consciousness is present in other animals, for example in the startle response of horses and the grooming behaviours of primates, both of which are deemed purposeful behaviours (Smail 2008: 127), exerting an impact on concentrations of the above-mentioned neurochemicals.

These ethological observations allow us to understand another dimension of Smail's argument. Despite psychoactive substances being the most direct way of changing human behaviour and cognition, any activity that has the ability to have a similar effect can be defined as psychotropic. According to Smail (2012: 43): 'a psychotropic mechanism, if we can use a broad and capacious definition, is anything that is capable of altering perceptions, emotions, moods and behaviour.' The etymological roots of the term 'psychotropic' lie in the Greek ψυχή (*psyche*=soul) and τρόπος (*tropos*=form, way). While the first word seems obvious in its relationship with drug use and addiction, the word *tropos* requires particular attention. In ancient Greek, the verb τρέπω (*trepo*) had two meanings: it referred both to the action of turning (changing course) and to the action of transformation, to give a particular form. In this way, psychotropic

mechanisms should be viewed as attempts to change bodily and noetic activity as well as giving form to this activity.

This brings us to a crucial point in rethinking addiction. The becoming-addictive of a relationship between the human and an artificial organ implies that addictogenesis is a possibility inherent in this relationship. Hence, an important question of the philosophy of technology, namely, whether technical artefacts have a positive or negative value for their users, is fundamental in the understanding of addiction-related phenomena. Sarah Jain (1999: 49) has criticized the strategy of understanding the relationship between humanity and technology in terms of prosthesis because it cannot account for the fact that technological prostheticisation can have both negative and positive attributes. Indeed, her argument is that accounts of prostheticity ignore the 'wounding ingredients of technological production.'

Are opioids, in their capacity as simultaneously effective painkillers and potential causes of death, positive, negative or neutral? When does the consumption of alcohol stop being an eternal instrument for relaxation and social circumstances and when does it become a source of immense pain and devastation for addicts and their families? Is addiction, in the last instance, an interaction between the human and the exosomatic organs gone wrong?

In my understanding of addiction, I adopt the framework established by the epistemologist of medicine Georges Canguilhem. According to Canguilhem (NP: 197), the state of health of living organisms is determined by the degree to which they are able to create new norms in their relationship with the environment, which is to say, new forms of life. The lack of health is then signified by the fact that the organisms cannot create new, 'superior' norms of interacting with their milieu, which is by default ever-changing, thus occasionally making established norms useless.

From this perspective, the pathology of addiction lies in the situation where the addict cannot respond to the requests posed by the environment. In other words, the addict cannot create new forms of life, becoming themselves only a vehicle for the perpetuation of the addictive behaviour. Or as Heidegger (BT: 240) put it: 'If Dasein, as it were, sinks into an addiction then there is not merely an addiction present-at-hand, but the entire structure of care has been modified. Dasein has become blind, and puts all possibility into the service of the addiction.'

Therefore, the negative consequences following addictive behaviour that according to clinicians are the landmark of addiction, are not necessarily connected in a linear fashion with being an addict. Instead, they appear as the outcome of a general incapacity of the individual to create new forms of engagement with a constantly changing milieu. Such an approach allows us to go beyond both the disease-model of addiction, which fetishizes the consumed substance with an evil agency supposedly 'hijacking' the nervous system once and for all, and the self-medication theory,

which to a certain extent rationalizes substance-misuse. I propose that we see addiction as the ever-present possibility in the life of the human who dwells in an environment that is chaotic and, unpredictable. For example, neuroscientist Tanya Calvey (2017: 2), claims that addiction can be attributed to the evolutionary advantage offered by neurobiological mechanisms that underlie attributes such as behavioural flexibility, innovation and adaptability. These traits share the same neurobiological substrate as personality traits typically associated with addictive behaviours, mainly impulsivity and novelty-seeking, making addiction 'the price we pay for adaptability' (Calvey 2017: 12).

There is perhaps a certain irony in the fact that Stiegler's conceptualisation of this problem is founded on the idea of the *pharmakon*, with all its neurochemical, drug-related connotations. The most important philosophical text where we find the term pharmakon being discussed is Plato's *Phaedrus*. The word pharmakon in ancient Greek used to describe substances which acted simultaneously as a cure and as a poison. The associated word *pharmakos* had the meaning of the scapegoat, the person who was sacrificed or brutalized in rituals of purification. Plato used this word to describe the function of writing in its capacity to facilitate memory through inscription as a method against oblivion (*hypomnesis*-the curative aspect of writing), but also to highlight the fact that writing undermines the faculty of memorizing (*anamnesis*). Thus, according to Plato (274e-275b), writing might be helpful in keeping things in our memory but, in the long run, weakens our capacity to memorize. A very simple and widespread example is the capacity of mobile phones to inscribe and save hundreds of telephone numbers, with their users remembering only few (if any) of these numbers without the help of the device. It was Jacques Derrida who reintroduced the *pharmakon* to philosophical circles in his deconstructive reading of *Phaedrus*. Derrida (1981[1972]: 115) attempted to show[2] that the *pharmakon* provides an example of the ambiguity, indeterminacy and undecidability of writing altogether. Stiegler, himself a disciple of Derrida, applies a pharmacological understanding to all forms of technics, since writing (the instrument of *hypomnesis* that conditions *anamnesis*) as an inscription of memory is the technology *par excellence.* As Stiegler puts it: 'The *pharmakon* thus remedies and overcomes the finitude of our memories, but as the same time increases the deficiency of our memory, and in this sense it is also a drug' (DD3: 85). In this sense, the pharmakon is 'the support of every form of addiction' (DD3: 85). Technical artefacts in a similar way to writing extend, enhance, transform and replace human processes but simultaneously undermine the independence of these or other capacities involved, inducing what Stiegler calls a state of *incapacitation*. The invention of the automobile has fundamentally changed

[2] Although scholars consider this more like a Derridean understanding rather than Plato's actual perspective; see further Kakoliris (2015).

transportation, but its use is related to climate change, obesity and traffic accidents. Smartphones that use Geographic Information Systems make transportation easier and faster but, according to navigation specialist McKinlay (2016: 573), these technologies weaken our navigation abilities.

This ambiguity has been lucidly described by the theorist Paul Virilio. Widely considered one of the most important cultural theorists focusing on the relationship between humanity and technology, Virilio used the concept of speed to highlight the transformational impact of technical developments on human life. Here, however, we are more interested in his emphasis on the inherent place of the *accident* in human-technical milieu interaction (Virilio 2006: 4). It is not unusual to see some technoscientific developments being described as random events, with scientists and engineers discovering new properties and new functions accidentally. Nevertheless, accidents can also be catastrophic events that make previous forms of activity and thought seem no longer possible. Nuclear disasters such as the events of Chernobyl and Fukushima showed that impressive advances in science and technology can be accompanied by instances of horrific devastation. Virilio (2006: 4) claimed that accidents 'from the most banal to the most tragic' are inscribed in technoscientific progress, incubating and lurking in spite, and perhaps because, of the fascination and optimism that human beings experience in facing technologically-oriented unprecedented shifts in their ways of life. Drawing from Aristotle's dictum that 'the accident reveals the substance' Virilio (2006: 5) writes: 'The shipwreck is consequently the "futurist" invention of the ship, and the air crash the invention of the supersonic airliner, just as the Chernobyl meltdown is the invention of the nuclear power station.'

Is addiction, according to this logic, an accident? The answer here cannot be a simple 'yes' or 'no'. In a sense the dominant approach to addiction, which belongs to what the historian David Courtwright has termed 'the NIDA paradigm' (2010: 137), emphasizing the influence that the National Institute on Drug Abuse had in shaping the contemporary discourse on addiction, presents the initial encounter with a substance and the subsequent development of impulse disinhibition as a form of accident. The main idea is that the dopaminergic system of the brain is 'hijacked' by a substance in an accidental fashion since the individual does not expect the consequences induced by their behaviour. However, such a conceptualisation, apart from being simplistic, ignores the important role that personal responsibility and self-destruction often play in addictive behaviours. The value of Virilio's theorization of the relationship between humanity and technics is found in the recognition that in every technological advancement one should expect the possibility of a 'negative', undesirable, even disastrous force. Psychotropic prostheticisation is critical in the process of anthropogenesis but, like every form of exosomatization, it can equally lead to the strengthening as well as to the undermining of endosomatic organs.

1.4. From proletarianisation to recapacitation

The realization that adopting a technophilosophical point of view might be fruitful for a new theorization of addiction is a vital first step, but it is certainly not enough. A more theoretically robust approach to addiction needs to provide an explanation of how and when the addictogenic potential of technics is actualized in the phenomena of addictive behaviours. In this section, I will discuss how a technophilosophy of addiction illuminates the question of treatment from a perspective that puts forth the inseparability of individual and collective transformation.

A plausible strategy for understanding the phenomenon of addiction in depth is to consider the function and the contribution of psychotropic prostheticisation to human life. The impact of a diverse set of psychotropic mechanisms—such as the subjective experience of alcohol-induced intoxication, the self-medicating properties of opioids or even the hypnotic state caused by an inspiring political speech—relates directly to the perceived modification or replacement of existing capacities. With psychotropy, physical and mental pain seem less unbearable, the future appears less bleak and individual potential might come to appear unlimited.

The transition to addiction happens when psychotropic prostheticisation ceases to be a strategy for a creative, healthy and sustainable way of life and the individual is transformed into the vehicle for the perpetuation of addictive behaviour. Intoxication becomes a mechanism to prevent the unbearable stress that follows the impossibility of intoxication, as in the terrifying withdrawal symptoms of a dependent drinker. Scrolling down on social media, and the trance state it induces, replaces other self-medicating behaviours to the level of exhaustion and literally physical pain (Thianthai 2018: 4). The individual loses the capability to regulate the psychical apparatus without the effect of the technical artefact. For this reason, I find that I respectfully disagree with Stiegler's idea that addiction can be 'positive', as in the experience of love (Rochard, Birge & Stiegler 2020; see also Bradley 2021: 11). In the context of discussing the figure of the amateur, Stiegler contends that '*l' amateur est une figure du desir, et le desir est addictif*' [the amateur is a figure of desire, and desire is addictive]. This idea fails to distinguish between addiction as a form of automation with the experience of passionate attachment towards an object, a cause, or a person, which sometimes can be detected in addiction among other phenomena. Indeed, the intensity of addictive urges often reminds us of passionate attachment, but the two concepts are not identical, only partially overlapping. If we accept that addiction can be approached as the state where the individual can no longer create new 'superior' norms in their relationship with the environment, which is under constant change, then addiction cannot be considered positive. That said, it is

possible that a process of automation can function as dis-automation from a previous addictive pursuit which might have been more catastrophic. Indeed, as I will show in Chapter 7, this seems to be the operating principle of Alcoholics Anonymous. In this sense, some addictions are more 'positive' than others. Yet they might still prevent the individual from being 'normative', in the sense developed by Canguilhem.

In order to understand these processes, it is important to note that an integral part of Stiegler's theory of technical evolution is that the systems of physiological organs, artificial organs and social organisation are related through a complex network of libidinal circuits that follow processes of sublimation and de-sublimation. Sublimation is a complex psychoanalytic concept that refers to the process where libido is directed towards an aim other than sexual satisfaction (Freud 1957[1914]: 94). Libidinal energy can be transformed into desire, understood here as the libidinal investment in objects on the basis of their singularity, or it can regress to the level of the drive conceived as automated, repetitive compulsion which tends toward the consumption of an object (PS: 12), meaning a loss of singularity. The transformation of libidinal energy relies on the ways technical artifacts are adopted by the social system. This is the reason that for Stiegler (CPE: 27), questions of political economy are inescapably questions of libidinal economy. The affective, libidinal framing of our relationship with technics is at the base of how the Stieglerian theory of technical evolution becomes relevant for understanding processes of individual psychosocial development. Stiegler conceptualises these processes through Simondon's theory of individuation. For Simondon (1992: 298), the problem of individuation, in other words, the process by which a specific individual form emerges, should not be approached by privileging the already constituted individual. As he puts it (1992: 300), to understand the 'entire unfolding of ontogenesis in all its variety', we need to approach 'the individual from the perspective of the process of individuation rather than the process of individuation by means of the individual.' According to Simondon, adopting the reverse perspective indicates that individuation should be conceived by assuming the existence of a certain pre-individual state which continues to exist after individuation. The pre-individual situation is full of 'dynamic possibilities that appear as differences, tensions, problems' (Lindberg 2019: 307). The individual is only a temporary outcome of individuation, always subject to further differentiation as a never-ending, simultaneously psychic and collective process. This process leads to a new relation between the pre-individual and the individual, as well as between the living organism and their environment (Wrbouschek & Slunecko 2021: 50).

Stiegler (DD2: 3) claims that the process of individuation always involves our engagement with technical artefacts. Yet, in contemporary societies this process becomes impossible. He uses the term proletarianisation (CPE: 28) to describe the loss of individuation resulting from loss of

knowledge experienced by the psychic apparatus in its interaction with the technical system. Stiegler identifies a shift in the processes of individuation with the advent of modernity and the industrial revolution. Before modernity, artisanal human beings were *technical individuals* since they were the tool carriers (SM1: 48–49) and every form of strictly technical entity (like the hammer, the wheel, etc.) served human needs. However, with the industrial revolution the machine becomes the technical individual and the artisan is reduced to its servant (when they have the role of the worker) or its assembler (when they function as an engineer or manager) (SM1: 48). This development is a loss of individuation because the role and activity of the worker (in their labour time) is now formalized by the machine, something that Simondon understood as the main process of becoming proletarian (SM1: 49). It is important to note that proletarianisation is not synonymous with pauperisation (this difference is one of the main reasons Stiegler opposes the identification of the proletariat with the working class.) Becoming proletarian means losing knowledge (SM1: 62), losing *savoir-faire* (know-how) and proximity with the product of labour, thus transforming the worker/creator into pure labour force whose exclusive motivation to continue working is to subsist. The short-circuit of psycho-social individuation or disindividuation has been extended in the consumerist phase of capitalism not only to the worker but to everyone, a process where desires are automated by the culture industry and reduced to the level of the drives, understood as libidinal energy that is incapable of being sublimated.

Plato is, according to Stiegler, the first philosopher of proletarianisation (CPE: 28). It was Plato that understood that a form of technics (writing) can lead to a loss of knowledge and that philosophy is to be conceived as the struggle against this loss.[3] Indeed, addiction constitutes a state where the addict is incapacitated and psychotropic prostheticity becomes automated striving for the perpetuation of the behaviour itself. Faculties of memory, perception and imagination are proletarianized and exploited by the marketing industry. David Foster Wallace (IJ: 270) describes this process in his novel *Infinite Jest*, where addiction comes with a 'psychic credit-card bill' demanding more than it originally gave.

Stiegler's formulation of the proletarianisation thesis finds an interesting and perhaps unexpected predecessor in Oswald Spengler.[4] In an essay under the title 'Man and Technics: A

[3] It is ironic that the main weapon for Plato's struggle is writing itself. Plato uses an *hypomnematon* to fight against *hypomnesis*. This provides an indication of the fate of philosophy as the eternal struggle against the proletarianisation of human mental life caused by a technical system that evolves faster than humanity itself.
[4] Spengler's approach to technology presents interesting similarities with Stiegler's philosophy, although an account of them shall not be given here. However, it is striking that both figures despite innumerable historical, ideological and methodological differences, use extensively the metaphor of Prometheus as a figure of man overcoming limits, folly, invention etc.

Contribution to a Philosophy of Life', which was an extended version of a lecture he gave on 6th May 1931, Spengler attempts to supplement his well-known pessimistic historiography, presented in his once popular opus magnum *Decline of the West*, with philosophical anthropology. As a matter of fact, according to a commentator (Kidd 2012: 24) 'Man and Technics' can be perceived as the proposed 'treatment' for the reversal of the post-World War I German historical predicament.

Spengler, in a similar fashion to Stiegler, attempts to take technics more seriously in contrast to the two currents of thought that he identifies as 'Materialists' and 'Idealists', since the former perceive technicity in utilitarian terms while the latter ignore technics altogether as a historical force. For Spengler, technics is not only important in order to understand post-Industrial Revolution historical developments but human history *in toto*. Conversely, the 'essence' of technics is revealed (Spengler 1973: 9) in the conceptualisation of human life as the struggle for survival in the battle against Nature[*sic*], whose outcome depends on what Spengler terms the 'tactic of living' *(Taktik des Lebens)*. His definition of technics then becomes the following: '*Technics is the tactics of living;* it is the inner form of which the *procedure* of conflict—the conflict that is identical with Life itself—is the outward expression' (Spengler 1973: 9). In other words, far from being simple tools to be used by an already existing subject, technical artefacts embody strategies of survival that influence human history (Kidd 2012: 24); tactics of living inextricably connected with the *'soul of man'* [*sic*].

Nevertheless, Spengler's diagnosis of industrial civilization, a culture that he defines as Faustian, remains rather grim despite its Nietzschean, heroic connotations. Spengler's crude and now decidedly dated polarization of humanity and 'Nature' as eternal enemies struggling for domination is transcribed to the relationship between the human and the 'Machine'. In his words: 'The creature is rising up against its creator. As once the microcosm Man [*sic*] against Nature, so now the microcosm Machine is revolting against Nordic Man [*sic*]' (Spengler 1973: 46). The tragic destiny of humanity in the Spenglerian perspective is to be enslaved by its own creation: 'The lord of the world is becoming the slave of the Machine, which is forcing him[*sic*]—forcing us all, whether we are aware of it or not—to follow its course' (Spengler 1973: 46). In the second volume of *Decline of the West* a similar vision is presented, where its author claims: 'the Machine . . . insists on being used and directed, and so that end centuples the force of each individual. For the sake of the machine, human life becomes precious [. . .] The machine works and forces the man to co-operate' (Spengler 1991: 411; as cited in Kidd 2012: 26).

The pervasive process of proletarianisation, without which capitalist growth would be unthinkable, is not confined only to the production-oriented aspect of human activity. Stiegler

(DD1) identifies a similar process in the consumerist transformation of Western economies during the 20th century that became solidified globally in the 21st century. Technicity has always been a defining characteristic of human life, however, the collapse of social institutions in the latest decades (Streeck 2016: 43) has exacerbated the toxic, poisonous, proletarianizing forces of technical development, establishing a process of automation that prevents the engagement with the curative, life-flourishing potential that is inherent in it. Generalized proletarianisation makes contemporary society 'addictogenic' (SA: 42), a social system where technical artefacts are willfully but also often inadvertently designed, manufactured and sold (Moore 2017a: 72) in order to facilitate addictive behaviours. However, one needs to be careful in recognising that the ways in which the current socioeconomic system manufactures addiction are not always designed with this goal in mind by the profit-making industries. In other words, capitalism as a system might incentivise people to create addictive products and experiences, without necessarily aiming to get people hooked. Moreover, these processes are inextricably connected with general shifts in contemporary life; mainly the deprivation of the pleasure in participating in collective institutions that leads people to seek solace in consumer goods, transforming them from citizens to consumers. Addiction then becomes an experience that transcends the stereotypical imagery of the marginalized addict. Consequently, addiction recovery becomes an ethical-political question.

The recognition that contemporary society is addictogenic can be misleadingly followed by an argument that individual addictions will not be profoundly challenged unless there is consideration and transformation of the specific characteristics of the social milieu that make them possible in the first place. Nevertheless, a view that anticipates the dissolution of addictive behaviours as a 'natural' consequence of a transition in a future non-capitalist, that is, non-addictogenic, non-proletarianizing, society is simultaneously theoretically arbitrary and practically paralyzing. In discussing the addictogenic processes that founded and still sustain capitalism, I do not claim that non-capitalist modes of social organisation have been and will be addiction free. Instead, I contend that addressing the question of addiction requires resisting the processes of proletarianisation and incapacitation of human life by articulating a method for strengthening capabilities and enhancing the existing potential of both individuals and communities. Thus, rather than just waging a battle against addictive behaviours using the epistemologically problematic and therapeutically inconsistent (see section 7.3 of this dissertation) treatments based on the 12-step tradition, a possible escape route might consist in initiating a process of transformation that involves de-proletarianisation of human life, which can be understood as an endeavour of collective and individual development of creating new, 'superior' norms.

As I will show in Chapter 8, the thought of the developmental psychologist L.S. Vygotsky is of primary importance here, since it is in his work that one can discover an account of human development that resists the temptation to consider individual transformation as a form of forced adaptation to demands posed by the environment. In other words, the fundamental promise of Vygotsky for addiction studies revolves around the need to consider the transformation of subjectivity not as a process of adaptation and surrender to the precarious environment of Western societies, but as a political and ethical imperative. A question which, of course, is significantly connected with the neuroplasticity of the human brain as simultaneously a force of creative engagement but also of addictogenic interaction with our technological prostheses.

Inspired by his studies in theatre and drama, and by the practice and teachings of Konstantin Stanislavski,[5] Vygotsky understood from the late 1920s the transformative potential of performing arts in giving birth to new forms of life, while remaining faithful to materialism. Starting from the investigation of this relationship, I will develop a theoretical argument supporting the value of activities inspired by performing arts towards a de-proletarianisation of human life, with the latter examined as itself characterized by dramatic elements, on and off the stage.

Understanding addiction as a process of incapacitation and proletarianisation should not lead to a pessimist attitude of resignation and frustration. Addiction recovery is a question of self-transformation which requires keeping in mind the ambiguous nature of technical artefacts and the inherent addictogenic possibilities of every invention that seems at first entirely positive. Performative arts might be able to provide psychotropic mechanisms that offer opportunities for recapacitation and deproletarianisation, without, however, being oblivious to the fact that these too can function as 'alternative substances' with addictogenic potential (Zontou 2012: 310). Far from simply emphasizing the need to abstain and surrender to a 'Higher Power' (which is, in a sense, another form of incapacitation), treatments for addiction should strive to give birth to entirely different individual and collective forms of life. The indivisibility of personal and collective transformation is precisely the characteristic of human life that constitutes—and assigns with unique responsibility—art and science as allies for theorizing the *process* and *promise* of a different, non-addictogenic world-building.

Although existing treatment methods, especially those based in the 12-step paradigm, constitute some form of self-transformation, where the individual changes to a certain extent the norms that guide their relationship with their milieu, they fail to engage with broader questions

[5] Stanislavski's name has also been transliterated as 'Stanislavsky'. Commentators tend to use equally both versions. In this dissertation, the version 'Stanislavski' was chosen in agreement with Jean Benedetti, the translator of Stanislavski's work which was consulted throughout the project.

regarding the phenomenon of addiction in its psychosocial totality. A different treatment paradigm is necessary, one that would express in a practical level the dialectic between individual and collective transformation and that would integrate—and take advantage of—the role technical artefacts play in these processes. As I will show (in Chapter 7) through a discussion of Alcoholics Anonymous, current methods attempt to replace the automation of the psychic apparatus created by the addictive pursuit with the automation promised by the 12-step programme. This strategy, however, ends up promoting a recovery that leaves the addictogenic environment in its place. Addiction treatment is rendered an individual achievement, despite AA's strong emphasis on the power of the 'group'.

1.5. Synopsis

Chapter 2 attempts to present a narrative about the concept of addiction from the first utterances of the word in Latin texts to its recent transfigurations in clinical nomenclature. With the term 'addiction' as a thread, I intend to follow the process in which the shift from the inherent ambiguity of the concept to its contemporary, mainly negative, connotation took place. Moreover, the narrative functions as a brief recapitulation of major moments in the history of the science and treatment of addiction. A historical perspective was considered necessary before engaging with the main debates of contemporary research which is explored in the following chapter. **Chapter 3** is intended as a presentation of the 'Brain Disease Model of Addiction' (BDMA), a paradigm of research and practice that largely dominates scientific approaches to the phenomenon. Starting from an exploration of some indicative neuroscientific experiments of the previous century, the chapter analyzes the premises and the main arguments that are put forth by the exponents of the BDMA, who tend to understand addiction as a cycle that involves three stages: a) binge/intoxication, b) withdrawal/negative affect, and c) preoccupation/anticipation (craving) (Koob & Volkow 2010: 217). After examining this conceptualisation, I consider the emerging criticisms of the BDMA focusing on the work of researchers who attempt to deconstruct the neuroscientific foundations of the model and offer an alternative approach to addiction without adopting the concept of 'disease'.

Chapter 4 attempts to overcome the limitations of the dominant approaches of addiction and presents the argument that addiction should be approached from an ecological perspective, entailing an understanding of what I term here as 'psychotropic prostheticisation'. Drawing from evidence emerging in the disciplines of comparative psychology and anthropology, I argue that the evolution of our species was influenced by the use (and sometimes abuse) of substances and by other potentially addictive behaviours that transformed our mind and body. At the basis of this

perspective, we find the concept of 'psychotropy' as developed by historian Daniel Lord Smail, but also contemporary sociobiological models of addiction. This chapter engages mostly with questions of substance use rather than those of addiction which are further explored in **Chapter 5**. In this chapter, I attempt to set the framework for a reconceptualisation of addiction as a pathology of normativity. A close reading of Canguilhem's *Essay on Some Problems Concerning the Normal and the Pathological* leads to a discussion of Bernard Stiegler's symptomatological analysis of addiction as proletarianisation, in an effort to answer the question: 'Are contemporary societies addictogenic?'. The chapter is completed with a consideration of the concept of 'dopamining' developed by Moore (2017a; 2018). The overall argument presents addiction as a case of pathological automation of the psychical apparatus produced by the individual's engagement with the psychotropic properties of technical artefacts in the context of environmental pressures that constitute addiction as a dominant mode of relating to the world.

Chapter 6 attempts a transition to questions of addiction recovery. I use the concept of 'autonomy' as a theoretical thread in exploring the process of addiction and its treatment. The examination of various perspectives on the 'autonomy' of the addicted individual, leads to the conclusion that addiction does not overwhelm agency—since the addict retains the capacity to choose differently—yet it impairs autonomy. I also examine the arguments expressed regarding the important issue of compulsory treatment, which is directly related to how contemporary addiction recovery technologies frame addiction as a loss of autonomy. Drawing from the resources of this chapter, **Chapter 7** is dedicated to a discussion of Alcoholics Anonymous (AA) as a technology of recovery that functions as a 'positive' form of automation circumventing the question of autonomy. More specifically, I consider through the dialectics of autonomy and automation, Valverde's (1998) idea that the AA programme constitutes a series of what Michel Foucault (1988) called technologies of the self; practices that automate the process of recovery replacing the addiction to a harmful substance/activity with the addiction to the programme itself. I also provide an overview of relevant evidence regarding the effectiveness of AA, in light of recent criticisms developed in both scientific and lay communities. Although some of these criticisms are valid, I argue that they often fail to consider the biggest limitations of the AA paradigm, namely its isolationist stance towards the outside world and the refusal to consider the social determinants of addiction. The chapter concludes with an exploration of autonomy and automation in the way AA are portrayed in David Foster Wallace's *Infinite Jest.* In an effort to work towards an alternative approach to addiction recovery, **Chapter 8** presents a speculative formulation that integrates the concepts of *machine zone* proposed by Natasha Dow Schüll (2012), the psychological construct of *flow* developed by the psychologist Mihaly Csikszentmihalyi (1975, 1988a, 1988b) and the concept

of *perezhivanie* as used by the theatre practitioner Konstantin Stanislavski (2008) and later by the child psychologist L.S. Vygotsky (1994). I argue in favour of theatre as a technology of recovery that constitutes simultaneously a process of individual and collective transformation. The chapter ends with some reflections on the idea of normativity in Canguilhem's work and Vasilyuk's psychological theory of *perezhivanie*, as they relate to addiction, attempting to connect the perspectives developed in previous chapters with the process of recovery.

In similar fashion, **Chapter 9** examines the transformative potential of writing as a technology of recovery through a close reading of Jean Cocteau's *Opium*. Drawing from the work of Bernard Stiegler (AD: 240), I propose that writing is a technique of exosomatization that provides individuals and communities of addiction recovery the simultaneously symbolic and material ground for self-identification while allowing the articulation of possibilities for self-transformation. However, writing, as a form of technology, is potentially addictive, therefore often impeding the process of recovery by preventing other forms of self-exploration and transformation.

Chapter 10 presents the main conclusions of this dissertation, discusses its limitations, and considers possible future directions. I conclude that the main advantage of a technophilosophical account of addiction is that by introducing the technological condition, it becomes possible to partially transcend the binary oppositions (nature/nurture; biology/culture; individual/collective) that have dominated addiction studies for decades. Stiegler's theory of technical evolution and the subsequent symptomatology of contemporary society, despite its limitations, provides a framework that reveals psychotropic prostheticisation as an evolutionary force that in modernity became a dominant way of relating to the world. Overcoming addiction, in a sense, calls for other, less destructive technologies of individual and collective transformation.

1.6. Note on presentation

In this dissertation, I have attempted to conceptualise addiction in the broadest terms possible. Traditionally there is a tendency in both academic and lay communities to restrict the concept of addiction to the pathological consumption of a specific group of substances which belong to a certain category identified as illicit drugs. I prefer to consider addiction more generally, as every form of pathological relationship that an individual has with a substance (i.e., heroin, marijuana, chocolate, etc.) or an activity (i.e., gambling, online gaming, etc.).

During the completion of the project, a dilemma regarding the use of the term 'addict' became apparent. While the term has been associated with practices of stigmatization and exclusion, it remains less cumbersome than terms such as 'addicted individual' and 'person

suffering from addiction'. I occasionally and interchangeably use the terms 'addict' and 'addicted individual', while remaining aware that these terms by no means provide an exhaustive representation of the complex identities of the people of concern.

Acronyms are spelled out in their first use within each chapter. Most books are cited mentioning the year of the edition used for this dissertation in parentheses and the year of their original publication in brackets. For formatting and bibliography, the 3rd Edition of Modern Humanities Research Association Style Guide was used.

Chapter 2: A brief history of a controversial concept

> If anyone seeks success in the harsh demands of art and sets his mind to great deeds, he must first put his behavior in good order, adhering to the laws of disciplined living. Let him disdain the haughty palace's insolent look of disapproval. Let him not, like a dependent, cadge for dinners from drunken hosts, or attach himself to the damned and drown the brilliant flame of his mind in wine (*nec perditis addictus obruat vino|mentis calorem*), or sit as part of a hired claque in the theater and applaud the actor's silly faces (trans. Schmeling 2020: 77).
>
> —Petronius, *Satyricon* 5.

2.1. Introduction

In 1997, the academic journal *Science* published a short article by Dr Alan Leshner, who at the time held a prestigious position as the Director of the National Institute on Drug Abuse (NIDA). In this text, titled 'Addiction is a Brain Disease, and It Matters', the author presents the Institute's perspective on the problem of addiction and addresses the social policy implications that such an approach entails. Leshner claims that the last two decades of scientific research 'have shown that drug addiction is a chronic, relapsing disease that results from the prolonged effects of drugs on the brain' (Leshner 1997: 45). While recognising that addiction as 'many other brain diseases' has social context-specific characteristics that are significant for the progression of the 'disorder', the author indicates that the way we approach the question of addiction should be guided by the neuroscientific advances in the exploration of the phenomenon. If addiction is a 'chronic, relapsing brain disease' then it should be treated as such. However, there is a 'dramatic lag between these advances in science and their appreciation by the general public or their application in either practice or public policy settings' (1997: 45). Leshner's lamentation refers to the stigmatization and criminalization of addiction that was still ongoing in his time and continues in some shape or form 25 years later from the publication of the article. Thus, his argument is formulated as a description

of a mismatch between the scientific understanding of addiction and the attitudes that permeate social policy and the general public regarding the addicted individual. Leshner uses a dichotomous structure by referring to the 'bad person' view of addiction, where the addict is perceived as a morally flawed individual who refuses to comply with socially accepted norms of pleasure and gratification, and the 'chronic illness sufferer' view, which indicates that drug abuse has modified brain structures (especially those that belong to the mesolimbic reward system; Leshner 1997: 46) rendering the individual incapable of controlling the use of one or more psychoactive substances.

Despite its short length, this text reveals very significant tendencies in the field of addiction studies. First, it presents concisely the main argument of the influential 'brain disease' model of addiction. As Leshner suggests: 'That addiction is tied to changes in brain structure and function is what makes it, fundamentally, a brain disease' (Leshner 1997: 46). Nevertheless, the enthusiastic confidence that is conveyed in his formulation regarding the decisive impact that neuroscientific advances have had for our understanding of addiction is counteracted by a more moderate admission found in a footnote of the same text, where we read that 'the exact mechanisms involved' in the transition from the voluntary substance use to the compulsive abuse 'are not known' (1997: 47n11). Such an oscillation between whiggish claims that neuroscience provides all—or at least the most valuable—answers to the enigma of addiction and the more reserved attitude regarding the complexity of the experience of addiction is a recurrent theme in addiction studies. Moreover, as it has been argued by Lewis (2015: 26), the fact that the brain changes its structure and function when an individual is abusing substances is not per se an indication of 'disease' since the brain in general is constantly modified through learning and other living processes. Secondly, Leshner's text is significant because it presents a fundamental polarization in how addiction and the addicted individual are perceived differently through a public health perspective and a social policy approach. Leshner accurately describes the chasm between the moralistic stigmatization of addiction, fully exposed in the destructive severity of the failed 'War on Drugs' (Earp and others 2021: 12) and the counter-paradigm of addressing the phenomenon from a medical-therapeutic point of view. However, Leshner's diagnosis of this chasm as a question of 'a dramatic lag' (1997: 45) between scientific advances and their 'appreciation' from the wider public surprises the reader with its lack of historicity. Instead, the question of whether addiction should be considered a 'moral flaw' or a 'medical problem', as we will see in this chapter, has transcended addiction studies for at least two hundred years. Most importantly, the existence of different perspectives regarding the addicted individual's moral status and ethical responsibility indicates that one should consider whether the 'brain disease' model and its variations are the actual descriptions of the experience of addiction, or whether they constitute rhetorical

formulations intended to ensure the humanistic, compassionate, and less-punitive treatment of the addicted individual. The question, in other words, is whether the 'brain disease' model constitutes an instance of what David Courtwright (2010: 138) has termed 'beneficent medicalization'.

The number of questions raised by reading Leshner's short article reinforces the general observation that, when approaching the field of addiction studies, one cannot fail to notice that the contemporary scientific discourse on the topic seems to be lacking consensus. Addiction remains one of the few mental health conditions where researchers, practitioners and service users appear to be in disagreement about everything; from aetiology and prognosis to symptoms and therapeutic options. To a certain extent this lack of consensus is reflected in—but also caused by—the diversity of terms used to describe the phenomenon.[6] Terms such as 'substance use disorder', 'pharmacodependency', 'substance abuse or misuse', 'addiction', etc. are still used interchangeably despite the recent attempt by the last edition of American Psychiatric Association's Diagnostic and Statistical Manual for Mental Disorders, DSM-5 (2013: 485), to formulate a unified framework which divides 'substance use disorders' to mild, moderate and severe. While the purpose of this classification was to avoid the pitfalls of relying heavily on the concept of dependence and the distinction between addictive substances and prescribed medications (which can also cause dependence), DSM-5 fails to see that this distinction is to a certain extent arbitrary and misses the general technical function of psychotropic drugs, regardless of their legal status. In addition, the classification of substance use disorders according to the substance itself (i.e., alcohol-use disorder, cannabis-use disorder, etc.) entails a further fragmentation of addiction research based on the substance and not on the experience of the person.

The terminological complexities identified in the field of addiction are not simply a matter of stylistic choices without consequences for the approach of the condition that researchers and practitioners adopt. Instead, the different terms used reveal different priorities and choices of research methodology and therapeutic intervention. Every time a certain term is preferred over another, different questions about moral (and legal) responsibility, personal agency and treatment options are being asked. Thus, it is important to consider the evolution of the terminology regarding addictive behaviours in order to consider the recent advances in the field of addiction studies as a whole. The main purpose of this historical endeavour is to frame the parameters of the contemporary debates about addiction in an attempt to understand, at least in part, the reasons

[6] Already from the 1980s there has been increasing concern about the 'conceptual chaos' (Shaffer 1986; 1997: 1574) in the field of addiction studies.

for which researchers and practitioners are still struggling with similar questions to those that were posed decades ago.

Interestingly, the word 'addiction' is the only mental health condition, or at least one of the few, that can have a positive connotation. As Rosenthal and Faris (2019: 438) claim:

> Addiction is also a popular brand name, and not just for footwear or hand bags or cosmetics, as you would expect, but also for a line of biker clothing and men's underwear, a brand of pet food, a media company, an archery range, and a brand of hot sauce.

In contrast, it is highly unlikely to see an activity being advertised as 'depressive' or as cause of other pathologies. The term is also used in order to describe any compulsive behaviour of an individual or intense liking of a specific activity. Thus, one person can be considered addicted to heroin or fast food (Fortuna 2012: 56) but can also be 'addicted' to less obviously destructive habits like exercise (Landolfi 2013: 111) or to studying (Atroszko and others 2015: 75).

The term addiction is imbued with this ambiguity from its very origins (Alexander & Schweighofer 1988: 151). According to the Oxford Latin Dictionary (2012 vol. 1: 40) the verb *addicere,* which is a compound of the verb *dicere* ('to say' or 'to speak') and the proposition *ad*, meant 'to speak to' and to 'assent' or 'adjudge'. From the verb *dicere* descend words that are part of our everyday life such as dictator, dictionary, and diction (Rosenthal & Faris 2019: 438). The term 'addictio' then had a legal meaning, referring to the enslavement of a debtor to his creditor, because the sentence was pronounced or spoken by the judge or praetor. The debtor became thus an *addictus*, expected to be the slave of the creditor for sixty days or until the payment of the debt. As Rosenthal and Faris (2019: 439) write in their research paper on the etymology of addiction, if the debtor failed to repay the debt after the sixty days, he was then considered permanently the slave of his creditor. A historian of law has also claimed that when incarcerated in Rome, the 'addicti', suffered by their creditors 'the grossest indignities' (Obenchain 1928: 173), while Hudson (2022) makes the case that the orientation of the Roman legal system towards protecting the creditor has been a shaping factor of Western civilization.

The same authors (Rosenthal & Faris 2019: 442) identify the emergence of a usage of the word *addicere* that had positive meaning around the first century BCE. With this function, the term was used to mean devotion to an activity or pursuit. An example of this utterance is found in Cicero (106-43 BCE) who, while defending Marcus Caelius Rufus against charges of political violence, promised that after the trial his client would be bound and dedicated ('addictum deditum', *For Marcus Caelius* 80) to the Republic. Another instance of the term used to convey a similar meaning can be found in Cicero's *For Plancius* 39.93, where he claims that he has always devoted himself to the senate ('senatus, cui me semper addixi'). In the anonymous work *Rhetoric for*

Herennius, that was mistakenly attributed to Cicero, we find another use of the term. The author uses a form of the verb *addicere* ('addixisti') to refer to the dedication to 'intemperance of all kinds' ('omnium intemperantiae addixisti', IV, 37).[7] A similar meaning of senseless surrender to desire is identified again in the same book, with the anonymous author using the imaginary example of a dishonorable woman being condemned by her surroundings because she 'sold her body to the basest passion' and 'she had to live in fear of many persons' ('suum corpus addixerit turpissimae cupiditati', IV, 23; 1954: 287). Of particular interest is the use of the term by the Roman encyclopaedist Aulus Cornelius Celsus in his influential *On Medicine*. While discussing fever in book III, 18, Celsus describes the state of *phrenesis*: 'when a continuous dementia begins, when the patient, although up till then in his senses, yet entertains certain vain imaginings; the insanity becomes established when the mind becomes at the mercy ('addicta est') of such imaginings' (Celsus 1935: 289, 291).[8] In this case, the state of being addicted refers to the overpowering and toxic attachment to specific mental representations, although the sensory faculties function normally—a condition which Celsus describes as 'continuous dementia' (*On Medicine* III, 18).

In the Early Modern period, the verb addict meant simply 'to attach.' The object of that attachment could be good or bad, imposed or freely chosen. As Rebecca Lemon (2018: 10) writes, during the sixteenth century, addiction, being associated with the ideas of attachment to God and religious piety, 'was not a problem; it was an achievement.' Even then, however, there was an element of ambiguity, as this devotion to a religious cause could be derailed into fanaticism and superstition. The same author (Lemon 2018: 10) identifies in texts of that period another kind of ambiguity regarding the term addiction apart from the positive-negative distinction. This refers to the continuum between obligation and free choice, a common concern of the religious writings of this epoch. Addiction related to such strong feelings of selflessness and dedication, that the individual seemed to act following a compulsion. At the same time, the existence of organised practices to cultivate addiction to 'God' reveals a certain level of personal choice involved.

According to the Oxford English Dictionary (OED), one of the earliest examples of the use of addiction to describe a state of predilection, inclination towards an activity is found in

---

[7] The extended passage reads: 'Nam de pueritia quidem tua, quam tu omnium intemperantiae addixisti, dicerem, si hoc tempus idoneum putarem; nunc consulto relinquo'. Translated from the Latin text as: 'Your boyhood, indeed, which you dedicated to intemperance of all kinds, I would discuss, if I thought this the right time. But at present I advisedly leave that aside.' (Cicero *Rhetoric for Herennius* IV, 37; trans. Caplan 1954: 321).

[8] The Latin text reads: 'Phrenesis vero tum demum est, cum continua dementia esse incipit, cum aeger, quamvis adhuc sapiat, tamen quasdam vanas imagines accipit: perfecta est, ubi mens illis imaginibus addicta est' (Celsus *On Medicine* III, 18).

Shakespeare's *Othello*. In the second scene of the second act of the play the Herald tells the soldiers after a military victory: 'It is Othello's pleasure, our noble and valiant General, that upon certain tidings now arrived importing the mere perdition of the Turkish fleet, every man put himself into triumph: some to dance, some to make bonfires, each man to what sport and revels his addiction leads him.'[9] Shakespeare uses the term once again, in *Henry V* (written around 1599). At the beginning of the play, the Archbishop of Canterbury praises the virtue and the gifts of the King who is described as an inspiring statesman and intellectual, traits that seem to be unexpected considering that in his youth Henry V led an unseemly lifestyle. The Archbishop contends:

CANTERBURY Which is a wonder how his grace should glean it,
Since his addiction was to courses vain,
His companies unlettered, rude, and shallow,
His hours filled up with riots, banquets, sports,
And never noted in him any study,
Any retirement, any sequestration,
From open haunts and popularity.

(Henry V, I. 1. 55–61)

In this instance the term addiction does not seem to indicate anything other than strong inclination and it would probably be anachronistic to suggest that Shakespeare uses the term to confer the meaning of compulsiveness or helplessness that we find in later uses of the word. Interestingly, the Roman ambiguity of the term 'addiction' seems to persist in Early Modern English. Bruce Alexander (2008: 29–30) mentions as an example the use of the term in the King James Version of the Bible. More specifically, the term is found in the translation of I Corinthians, otherwise known as the First Epistle of St Paul to the Christian Community of Corinth written in 59 AD. In this letter St Paul reproves the newly found community for immoral behaviour and sectarianism. More specifically, St Paul instructs the recipients of the letter to avoid social relationships with any person who is a 'fornicator' (πόρνος), 'drunkard' (μέθυσος) or an extortioner (KJV Bible, I Corinthians 5:11). His severe criticism is followed by his encouragement that Corinthians should be inspired by the example of the Achaian family of Stephanas, who were among the first to be baptised in the neighboring region of Achaia. The family have been entirely

[9] In her book *Addiction and Devotion in Early Modern England* (2018) Rebecca Lemon presents a compelling reading of the entire play through the lens of addiction.

dedicated to the cause of piety, here described as actively 'addicting' themselves to serving the saints:

> 16:15 I beseech you, brethren, (ye know the house of Stephanas, that it is the firstfruits of Achaia, and that they have addicted themselves to the ministry of the saints,) 16:16 That ye submit yourselves unto such, and to every one that helpeth with us, and laboureth.[10]

As noted by Alexander (2008: 30), more recent translations avoid the term 'addicted' preferring the use of 'set themselves to minister unto the saints' (American Standard Version) or 'devoted themselves to the service of the saints' (English Standard Version) presumably because by the 19th century the term had started being increasingly associated with images of drunkenness and intoxication, which could convey a version of religious piety based on irrational and uncontrollable dedication.

2.2. The early medical perspectives

An influential text which reinforced the association between the term 'addiction' and harmful substance use was Benjamin Rush's *An Inquiry Into the Effects of Ardent Spirits Upon the Human Body and Mind: With an Account of the Means of Preventing, and of the Remedies for Curing them.* A signatory of *United States Declaration of Independence*, Rush is considered 'the father of American Psychiatry' (Shorter 1997). According to the important study on the origins of the disease concept of addiction by Levine (1978) Rush's work was fundamental in establishing 'the first clearly developed modern conception of alcohol addiction' (Levine 1978: 151). Born in 1745, Rush acquired his medical degree in Edinburgh, Scotland (Meyer 1996: 162) at a time where the city was the epicentre of the Scottish Enlightenment. Rush was an important member of an entire network of American physicians who were trained at Scotland and transferred the ideas of Scottish Enlightenment to the medical practices of the colonies (Irving-Stonebraker, 2017: 197). None other than Benjamin Franklin himself encouraged young American physicians to continue their studies in Scotland (Irving-Stonebraker, 2017: 202).

In the 'Inquiry' the term 'addicted' is mentioned three times and it is used to signify the overwhelming use of 'ardent spirits'. All of these three instances occur in passages expressing ideas

[10] In the original the term used is '**ἔταξαν ἑαυτούς**' from the verb '**τάσσω**' which meant among other things 'appoint to any service, military or civil'. The whole passage reads as follows: '**Παρακαλῶ δὲ ὑμᾶς, ἀδελφοί· οἴδατε τὴν οἰκίαν Στεφανᾶ, ὅτι ἐστὶν ἀπαρχὴ τῆς Ἀχαΐας καὶ εἰς διακονίαν τοῖς ἁγίοις ἔταξαν ἑαυτούς· ἵνα καὶ ὑμεῖς ὑποτάσσησθε τοῖς τοιούτοις καὶ παντὶ τῷ συνεργοῦντι καὶ κοπιῶντι.**'

which still could be of interest to the modern reader regarding the birth, development and treatment of addiction. In the first instance, Rush (1810: 12) describes the consequences of alcohol abuse ('the evils produced by ardent spirits') on the addict's property and their environment in general. In the second occurrence, the reader is advised to avoid personal relationships with 'persons addicted to the use of ardent spirits' (Rush 1810: 25). The third instance, placed in the very last paragraph of the essay, reads: 'It has been said, that the disuse of spirits should be gradual; but my observations authorise me to say, that persons who have been addicted to them, should abstain from them *suddenly* and *entirely*' (Rush 1810: 36, emphasis in the original). In this passage we find, perhaps, the first articulation of a view which remains still the foundation of the most dominant perspective in addiction treatment, one that puts abstinence at the centre of recovery. However, we now know that a sudden withdrawal for people dependent on alcohol can be extremely dangerous. Interestingly, he also put forward the idea of establishment of hospitals for the treatment of 'alcoholics', institutions that he called 'Sober Houses' (Wittels 1946: 165). This suggestion can be considered the predecessor of contemporary rehabilitation clinics.

According to Levine (1978: 152), this focus on abstinence constitutes one of the four original ideas which made Benjamin Rush's work so significant in the history of the medical approach to addiction. The other three refer to a) his identification of 'spirits' as the causal agents of addiction, b) his description of the loss of control over drinking that defined the behaviour of the alcoholic, and c) his determination in approaching alcoholism as a disease. Rush claims unreluctantly that 'drunkenness' is an 'odious disease' and 'by that name it should be called'. Being a disease, alcoholism is identified by a long list of symptoms in which he includes among others 'garrulity' but also 'unusual silence', immodesty, swearing and quarrelsomeness (Rush 1810: 5-6). The moral content of these symptoms, in the sense of them belonging to a group of behaviours that were considered inappropriate, indicates that even in his adoption of a medical perspective of addiction, Rush was still influenced by a moralistic attitude towards the effects of inebriation.

Rush was not alone in his concern for the impact that alcohol-induced intoxication could have for the prosperity of the new nation. Already from the 1810s (Rohrer 1990: 229) we see the emergence of various US-based religious groups with an explicit opposition to the selling and consumption of distilled beverages. These groups shifted from a rhetoric of moderation to an aggressive rhetoric of abstinence. For example, a text distributed by the Connecticut Missionary Society in 1804 sanctions the moderate consumption of 'the creatures of God given for our support and refreshment' (Rohrer 1990: 229). By the beginning of the second decade of the 19th century, the temperance movement started to perceive the consumption of alcohol *per se* as pernicious and immoral. It was in this period, only a few decades after Rush's publication, that the

Presbyterian minister Lyman Beecher published his influential 'Six Sermons on the Nature, Occasions, Signs, Evils, and Remedy of Intemperance' (1827). The man who would soon become the co-founder of the American Temperance Society, provides an interesting case where addiction[11] is simultaneously a moral vice and a medical problem. For Beecher (1827: 37-38)

> Intemperance is a disease as well as a crime, and were any other disease, as contagious, of as marked symptoms, and as mortal, to pervade the land, it would create universal consternation: for the plague is scarcely more contagious or deadly; and yet we mingle fearlessly with the diseased, and in spite of admonition we bring into our dwellings the contagion, apply it to the lip, and receive it into the system.

In similar fashion to Rush, Beecher understands the disease as a problem of self-control where the alcoholic goes through a tortuous process of guilt, resolution and relapse:

> Conscience thunders, remorse goads, and as the gulf opens before him, he recoils and trembles, and weeps and prays, and resolves and promises and reforms, and 'seeks it yet again'; again resolves and weeps and prays, and 'seeks it yet again'. Wretched man, he has placed himself in the hands of a giant who never pities and never relaxes his iron gripe. He may struggle, but he is in chains. He may cry for release, but it comes not; and Lost! Lost! May be inscribed upon the door-posts of his dwelling. (Beecher 1827: 15)

According to Lassiter and Spivey (2018: 29), Beecher's position represents the shift in the way the temperance movement perceived the place of alcohol in the ethical life. From a critique of excess and an appeal to moderation, the temperance movement attributes demonic properties to the 'ardent spirits', an approach which in itself makes abstinence the only respectable conduct of the proper Christian. Various threads of contemporary addiction science seem to proliferate in this intellectually intense period. First, we identify a particular emphasis on the substance as the cause of addiction, with alcoholism appearing as an ever-present consequence of alcohol consumption. For, if the substance is intrinsically addictive and 'the great destroyer' (Rohrer 1990: 230), then everyone, regardless of their level of use, can become an alcoholic. Secondly, and partly because of the demonisation of the substance, 'drunkenness' is increasingly considered a disease and less a moral flaw. This distinction is not unambiguous yet, but the fact that even religious commentators adopt a medical perspective indicates that the disease concept of addiction is gaining ground. Consequently, the weight of responsibility moves slightly from the individual to the substance. Alcoholism is considered as primarily caused by the potency of the distilled

[11] Although Beecher does not use the term 'addiction'.

beverages which seduce the consumer into a downward spiral of social and spiritual decay, rather than by an intrinsic immoral hedonism of the individual. From this point of view, the response to the menace of addiction could be twofold: prohibition, which could solve the problem of supply, and abstinence, which was the only acceptable relationship that an individual could have with the substance.

Around the same time that the Connecticut Missionary Society sanctioned the moderate use of alcohol, a retired British physician by the name of Thomas Trotter published his 'Essay on Drunkenness' (1804), which was the first ever book-length treatise on alcoholism and its cure. Although the influence of Trotter's text was by no means equivalent to the pervasive recognition that Benjamin Rush secured with his pamphlet a few decades earlier (Edwards 2012: 1562; Porter 1988: xvii), the 'Essay on Drunkenness' constitutes a significant landmark in the history of addiction science.

There are multiple reasons to justify this claim. Despite being a physician, Trotter was particularly interested in the sociohistorical embeddedness of alcohol consumption. At one point we read: 'It cannot be doubted that the convivial disposition of the inhabitants of Great Britain and Ireland, has a strong tendency to extend the habit of ebriety. There is no business of moment transacted in these islands without a libation to Bacchus' (Trotter 1988[1813]: 142). A few lines later he contends: 'As the wine sparkles the spirits mount, and the heart dilates: man is an imitative animal, and quickly assimilates with his associates' (Trotter 1988[1813]: 143). The focus on the social and cultural function of alcohol is inextricably connected with his conceptualisation of 'drunkenness' as a habit. In a sense, Trotter seems to espouse an approach of alcoholism as a problem of learned behaviour more than 150 years before the appearance of the first behaviourist models of addiction. Describing inebriation as 'habit' or 'custom', Trotter insists on understanding the problem as imitation of maladaptive behavioural patterns. When discussing the impact of upbringing in the consumption of alcoholic beverages, he writes:

> Indeed where the members of a family were so early initiated into pernicious customs by both precept and example, parents have no right to look for a regular life among their children. In this habit, as in all others, *imitation has its powerful effects*; and the man is spoiled in the arms of his nurse, while yet an infant (Trotter 1988[1813]: 156-157, my emphasis).

Elsewhere, reiterating the idea of drunkenness as a disease, he even contends that 'The seeds of this disease, (the habit of ebriety,) I suspect, like many other, are often sown in infancy' (Trotter 1988[1813]: 150). Interestingly for our discussion, Trotter uses the term 'addicted' more frequently

than his contemporaries, mostly as 'addicted to drinking' (Trotter 1988[1813]: 80, 87, 88, 141) or 'addicted to ebriety' (Trotter 1988[1813]: 166). The reason for this choice could be his familiarity with Latin authors. The 'Essay on Drunkenness' abounds with references to Horace, Ovid and Tacitus.

Finally, in perhaps the most prescient contribution of this work, Trotter suggests that the therapeutic endeavour on the part of the clinician should be centred around a strategy that today would be understood as 'talking cure':

> I have mentioned . . . the necessity of studying the patient's temper and character, that we may acquire his confidence. This will lead us to the particular cause, time and place of his love of the bottle. The danger of continuing his career may then be calmly argued with him and something proposed that will effectually wean his affection from it, and strenuously engage his attention (Trotter 1988[1813]: 181).

Focusing on the value of establishing a therapeutic relationship, Trotter seems to understand as the purpose of the treatment the progressive dismantling of the habit by means of rational argumentation and other techniques that remind us of contemporary counselling. For example, elsewhere he suggests that the physician should take advantage of opportunities that allow him:

> to hold up a miror [*sic*] as it were, that he may see the deformity of his conduct, and represent the insurable maladies which flow from perseverance in a course of intemperance. There are times when a picture of this kind will make a strong impression on the mind; but at the conclusion of every visit, something consolatory must be left for amusement, and as food for his reflections (Trotter 1988[1813]: 175 –176).

As we can see from the texts of this period, during the first half of the 19th century on both sides of the Atlantic the primary concern was not the consumption of alcohol in general, but the intoxication caused by the distilled beverages (e.g. liquor) which were associated with heavy alcohol consumption (Tice 1992: 16). However, after the 1850s, groups promoting temperance became increasingly teetotal condemning all uses of alcohol except those authorised for medical purposes (Gilkeson 1986: 30-35; Levine & Reinarman 1991: 462). The existence of this shift is also confirmed by Levine (1978: 161) who identifies a transition in temperance ideology towards the end of the 19th century. This transition entails the fading into the background of the progressive, reformist attitude that Temperance Societies had during the previous decades and their

transformation into a 'single-issue' movement focused on Prohibition. Indeed, temperance groups should not be understood as necessarily repressive or anti-liberal organisations with a coercive agenda against individual freedoms. Instead, they constituted attempts to respond to the expansion of social misery and disintegration caused by the combination of two historical forces: the intensified labour practices produced by industrialization, and the social instability following the decline of religious institutions as the primary force of moral authority (Sulkunen & Warpenius 2000: 426). On that note, their interconnectedness with the labour movement should not be underestimated[12] (Alexander 1988: 764), alongside the well-studied feminist leadership in many temperance groups (Fletcher 2007).

The temperance movement's increasing focus on prohibition (Gusfield 1986: 98) was not only important for the political orientation of its message but had also significant implications on its members' general perspective on addiction. According to Levine (1978: 161), the primary emphasis in the rhetoric of the Prohibition campaign during the first decades of the 20th century was not addiction *per se* but the adverse consequences of alcohol intoxication. Among these we find alcohol-related accidents in industry and transportation, the impact on work efficiency and domestic violence. Under the influence of the Anti-Saloon League (Lamme 2003), whose successful public campaigns were instrumental in the passing of the 18th Amendment (Mann and others 2000: 11),[13] the perception of the saloon as breeding ground for criminal activity and immoral behaviour became more and more prominent. In fact, the elimination of the saloon along with the destruction of the powerful liquor industry was seen as of vital importance in the agenda of the Prohibitionists (Levine 1984: 113).

2.3. Prohibition and the re-birth of the 'disease-model'

If saloons represented the place where intoxication and crime merged into an explosive mix of antisocial behaviour, immorality and promiscuity (Leitzel 2007: 106), then one could suggest that it is through this association with criminal activity that the temperance movement's sympathy toward the figure of the addict waned (Levine 1978: 161). As temperance ideology became more and more infested with prohibition legislation, law enforcement and coercion as the proper response to alcohol addiction and less with reform and moral education, it makes sense that the

[12] Nevertheless, as Reckner and Brighton (1999: 82) document there was a 'class-based disparity in adherence to the temperance movement's message' which refers to a simultaneous prescription of total abstinence for lower classes and the tolerance of moderate consumption of alcohol for members of the middle class, as long as the respect for social conventions was maintained.

[13] More on the 18th Amendment in the following pages.

alcoholic came to be perceived as a pariah who preferred the company of prostitutes and fellow drunkards rather than the warmth of his family home.

This attitude was evident regarding the use of substances other than alcohol too. For example, the historian David Courtwright claims in his book *Dark Paradise: A History of Opiate Addiction in America* (2001) that, at the beginning of the 20th century, the typical opiate user is no longer the older female morphine addict who started using opiate for medical reasons, but the lower-class young male who started using drugs such as heroin for "recreation" (see also Campbell 2007: 12). The difference between substances here is crucial. Courtwright (2001: 97) mentions the remarks of the influential New York psychiatrist Alexander Lambert, according to whom heroin was a 'vice of the underworld', and addiction to which was created by 'vicious associations and habits', while morphine users were motivated by a will 'to forget bodily pain and mental suffering' (Courtwright 2001: 97). On a similar note, at around the same period, opiate addiction became increasingly associated with illegal activity and prostitution (Keire 1998: 810).

The culmination of this trend was the passing of two very significant pieces of legislation. The 1914 Harrison Narcotics Tax Act and the 18th Amendment to the United States Constitution which was ratified in 1919[14]. Sponsored by the New York Congressman Francis Burton Harrison, the 1914 Narcotics Tax Act was an attempt to impose a tax 'upon all persons who produce, import, manufacture, compound, deal in, dispense, sell, distribute, or give away opium or coca leaves, their salts, derivatives, or preparations, and for other purposes' (Harrison Narcotics Tax Act 1914: 785). Far from being a simple fiscal measure, the legislation had a provision regarding the capacity of physicians to prescribe narcotics as part of their medical practice. However, it was not clear whether a physician could lawfully prescribe opiates to addicts in order to avoid withdrawal syndrome, a practice referred to as 'maintenance'. This created a legal void that was only covered by the Supreme Court five years later. In the case *Webb and others* v. *United States* (1919), the Supreme Court decided that physicians were not allowed to prescribe opiates for the purpose of maintaining the habit of opiate use.[15] Physicians and pharmacists suspected of non-complying with this policy could be and actually were prosecuted. As Courtwright (2001: 2) suggests, the reduced availability of legally prescribed opiates led to the expansion of the black drug market. By its nature, the black market offered narcotics at much higher prices, leading opiate users towards petty crime in order

[14] And repealed in 1933.

[15] The actual text reads: 'If a practicing and registered physician issues an order for morphine to an habitual user thereof, the order not being issued by him in the course of professional treatment in the attempted cure of the habit, but for the purpose of providing the user with morphine sufficient to keep him comfortable by maintaining his customary use, such order is not a physician's prescription under exception (b) of § 2 of the act'. Webb v. United States, 249 U.S. 96 (1919)

to cover the cost. Although the increased criminalization of the addict might have started earlier due to larger sociocultural shifts, especially due to processes of urbanization that created a landscape full of exotic figures like the addicted sex worker and the lower-class, male 'down-and-outs' (Courtwright 2001: 3 and 60), the Harrison Narcotics Tax Act intensified it. Moreover, urbanization has been associated with harmful substance use, since it usually involves increases in supply of various substances and multiplies stressors created by the urban lifestyle with people trying to adapt to them by using those substances (Morgan & Mall 2019: 219).

The 18th Amendment and the related Volstead Act, more formally known as the National Prohibition Act, constitute two of the most significant moments in the legislative history of the United States. A major success for the temperance movement, the 18th Amendment prohibited 'the manufacture, sale, or transportation of intoxicating liquors' (United States Congress 1919a) while the Volstead Act clarified that this meant the prohibition of 'any beverage containing 0.5% or more alcohol by volume' (United States Congress 1919b). Habitually considered a failure (Thornton 1991; Blocker Jr, 2006: 233; Leitzel 2007: 106), the act is said to have reduced alcohol consumption and alcohol-related problems by as much as 60% (Hall 2010: 1170). However, this referred only to short-term changes: the availability of beverages was re-established by the black market and adherence to the law waned during the latter part of the thirteen-year period that prohibition was in effect (Hall 2010: 1170; Tyrrell, 1997: 1406). As with the Harrison Act, the era of National Prohibition was infested with an expansion of organised crime (Rorabaugh 2018: 97) and political corruption (Kugler and others 2005: 1642). The prohibitionist approach to alcohol intoxication had significant impact on public and scientific perception of the problem of addiction. The abandonment of the disease theory of alcoholism by the Temperance movement during the early 20th century was followed by a reinforcement of the perception of the phenomenon as a moral vice until the mid-1930s when the disease model made its comeback (Loue 2003: 292).

The field of opiate addiction was dominated by the ideas of the psychiatrist Lawrence Kolb[16] (1881–1972) who, as a member of the prestigious U.S. Public Health Service Hygienic Laboratory in Washington, D. C. (1923-1928) (Campbell 2007: 16), conducted leading research into drug addiction. According to Courtwright (2001: 132), Kolb was a major proponent of addiction as a medical problem, an approach that is evident by the title of his most important work ('Drug Addiction: A Medical Problem', published in 1962). In an obituary published in the *American Journal of Psychiatry* (Felix 1973: 718), Kolb is praised for his outspoken opposition to the idea that drug addiction was the result of criminal conduct. However, more recent scholarship

[16] Not to be confused with the psychiatrist Lawrence Kolb (1911-2006) who served as New York State Commissioner of Mental Hygiene from 1975 to 1978.

(Acker 1995: 171; Courtwright 2001: 132) paints Kolb's picture with less bright colours, as his work was fundamentally based on the idea that addicts could be divided into a 'psychopathic' or 'vicious' group and a group of 'normal' or 'innocent' addicts (Acker 2002: 126). Drawing from a study of 230 addicts, Kolb contended that most cases of addiction could be attributed to the existence of psychoneurotic deficits in the character of the individual which made them prone to the 'disease'. Kolb used the term 'little men' to describe these individuals (Kolb 1925: 302), whom he thought incapable of fulfilling their ambitious expectations of social status. The frustration caused by this inability was relieved using addictive drugs. Acker (1993: 201) has characterised Kolb's theory as 'stigmatizing and dichotomous', given that the latter portrayed some addicts as pleasure-seeking individuals with a personality disorder. Nevertheless, in a period that saw increased moral panic about drug addiction, he was insistent on the need for a less punitive approach, rejecting incarceration as a method of treating addicts (Courtwright 2001: 131).

The end of the Prohibition era was accompanied by another major development in the history of addiction and its treatment. This is none other than the founding of Alcoholics Anonymous (AA), an organisation based on relationships of fellowship between recovering alcoholics (Gross 2010: 2361), by Bill Wilson and Dr Bob Smith in 1935. The movement was instrumental in the revival of the disease concept of alcoholism and consequently, championed the access of addicts to medical treatment as a right (Mann and others 2000: 11). Interestingly, AA rejected the prohibition paradigm, although their focus on abstinence might suggest otherwise (Rorabaugh 2018: 111). Framing alcoholism as a progressive illness[17] with loss of control as the primary symptom did not prevent the founders of AA from re-emphasizing individual responsibility, an orientation evident throughout the catalogue of the 12 Steps (see Index). What differentiates AA from other treatment methodologies is that 'AA is fundamentally a spiritual program' (Miller & Kurtz 1994: 161), which provides a peculiar combination of medical vocabulary and theological references to connect addiction recovery with spiritual awakening. Levine (1978: 162) claims that, along with the Yale Center of Alcohol Studies, which was according to Page (1997: 1622) the major academic institution for alcohol research for decades, AA was a significant force for an important shift in addiction discourse during the 1930s and 1940s. A possible explanation for the success of AA could be that they seemed a 'natural' continuation of the temperance movement.

Early in the Big Book one reads: 'The only relief we have to suggest is entire abstinence' (Alcoholic Anonymous 2001: xxx). Despite the differences between the two movements, the emphasis on

[17] As Severns (2004: 160) Bill Wilson, the founder of AA, preferred to use the terms 'illness', 'sickness', 'malady' and more significantly 'allergy' (see next page) rather than 'disease'.

abstinence was something shared in common between the temperance movement and AA. Proposing abstinence as the only means to combat addiction, AA essentially agreed with the temperance groups that, if not for all, at least for certain individuals, alcohol appears to be inherently addictogenic and its consumption cannot be put under control. Here the proviso 'for certain individuals' is important as it can explain why, contrary to the temperance movement, AA groups do not engage in politics of alcohol regulation. If alcoholism is an outcome of individual susceptibility, then there is no benefit in attempting to prohibit alcohol in general.

Approaching the addictive substance in such a way prepares the ground for re-articulating alcoholism as an (exogenously caused) disease. Since alcohol causes addiction, habitual drinking after a certain point is not a lifestyle choice but a compulsive behaviour beyond the individual's control. Compulsive behaviours, by definition, are considered unhealthy since they seem to ignore the individual's best interest. However, according to this perspective, only people with a mental illness could act contrary to their long-term self-interest and continue to drink, putting at risk work stability, family life and personal development. People addicted to substances seem to do so, hence, they are suffering from a 'disease' that forces them to act in an otherwise inexplicable way. AA's founders were sceptical about adopting the term 'disease'. Bill W., for example, when asked about alcoholism as a disease during the annual meeting of the National Catholic Clergy Conference on Alcoholism in 1961, attempted to clarify this position: 'We have never called alcoholism a disease because, technically speaking, it is not a disease entity' (Kurtz 2002: 7). He also explains, that AA did not want to challenge physicians, and for this reason terms like 'illness' and 'malady' were preferred (Kurtz 2002: 7).

Nevertheless, it seems that by recommending abstinence they reinforce the view that alcohol is a 'toxic' substance to which the body is always susceptible and from which it should be kept 'clean'. Campbell (2012: 11) has suggested that prevalent in that period among the AA movement was the conception of alcohol as an 'allergen'. AA are furthermore not hesitant to make comparisons with physical illnesses. In the *Big Book*, the document which encompasses the most important ideas of the AA movement, one reads: 'I wasn't mad or vicious—I was a sick person. I was suffering from an actual disease that had a name and symptoms like diabetes or cancer or TB—and a disease was respectable, not a moral stigma!' (Alcoholic Anonymous 2001: 205). This formulation indicates the endorsement of the disease concept of alcoholism. It also reveals the underlying rationale for adopting such a view, because articulating alcoholism as a 'disease' prevents the stigmatization of the alcoholic as a 'morally' compromised individual. Elsewhere in the same book (Alcoholic Anonymous 2001: 18) the 'disease' of alcoholism is considered even worse than well-known physical diseases. A clear presentation of this idea is found as follows:

> An illness of this sort—and we have come to believe it an illness—involves those about us in a way no other human sickness can. If a person has cancer all are sorry for him and no one is angry or hurt. But not so with the alcoholic illness, for with it there goes annihilation of all the things worthwhile in life. It engulfs all whose lives touch the sufferer's. It brings misunderstanding, fierce resentment, financial insecurity, disgusted friends and employers, warped lives of blameless children, sad wives and parents—anyone can increase the list (Alcoholic Anonymous 2001: 18).

Again, one sees here a dialectic reinforcement of the coupling between the 'disease' concept and the compulsive element of addiction. According to AA, alcoholism is a 'disease' that is expressed through the destruction of every area of an individual's life (financial stability, impaired human relationships, and suffering) but also it is the individual's persistent alcohol consumption despite these harmful consequences that make alcoholism a 'disease'. Under this framework, only abstinence can produce therapeutic results by removing the 'threat' that alcohol poses altogether from an individual's life.

A significant factor for the pervasive influence of AA's approach to alcoholism was the alliance that the movement established with the medical practitioners of the 1930s and 1940s. The clearest example of such a relationship was the enduring collaboration of Marty Mann and Elvin Morton Jellinek. Mann (1904-1980) was a lifetime campaigner for the disease model of alcoholism (Page 1997: 1624) and an early member of the Alcoholic Anonymous. According to her biographer, Mann's sponsor during her recovery was Bill Wilson, the founder of AA (Brown & Brown 2005: 115). Passionate and dedicated in propagating the idea that alcoholism is a disease and not a moral flaw, Marty Mann found in E.M. Jellinek—at the time, an early researcher on the clinical epidemiology of alcohol addiction—the person who would support with 'scientific' validity her main message (Reinarman 2005: 313). Jellinek himself had no less complex a life trajectory. Born in New York in 1890, the son of a Hungarian born actor and an American opera singer (Page 1997: 1620), Jellinek studied linguistics, philosophy, ethnography and psychoanalysis in Germany, France and the United States (Kelemen & Mark 2016: 234; Page 1997: 1620). Jellinek's initial research interest was the prevalence of liver cirrhosis among alcoholics (Joliffe & Jellinek 1941). However, as a director of the Section of Alcohol Studies of the Laboratory of Applied Physiology based at Yale University (later renamed the Yale Center of Alcohol Studies) (Page 1997: 1622), Jellinek had the opportunity to produce world-leading research on general patterns of alcohol consumption and types of alcoholism. Having been impressed by Mann's campaigning skills, Jellinek convinced Howard Haggard, Director of the Laboratory of Applied Physiology, to fund

her activities as a spokesperson of the Section. In 1944, Mann and Jellinek established the National Committee for Education on Alcoholism (NCEA), an organisation dedicated to the advancement of the disease concept of alcoholism (Page 1997: 1625). Nevertheless, their collaboration was not restricted to information campaigns as, according to Kelemen and Mark (2016: 239), Jellinek conducted research with data from members of Alcoholic Anonymous provided by Mann herself.

Producing influential research outputs for the next few years, Jellinek secured in 1950 a prestigious position as a consultant for the Alcoholism Sub-committee of the World Health Organisation's *Expert Committee on Mental Health* (Page 1997: 1628). With this role, Jellinek had the opportunity to advance his view that alcohol-related problems were worthy of medical attention. At the same time, Jellinek did not apply the concept of disease to all types of excessive drinking. As we read in his 'Phases of Alcoholism' a text reproduced as an annex in the WHO's Alcoholism Subcommittee's Second Report, 'only certain forms of excessive drinking—those which in the present report are designated as alcoholism—are accessible to medical-psychiatric treatment' (Jellinek 1952: 26). Jellinek goes on to argue that the 'disease' label is being misused to identify all forms of excessive drinking, a tendency that is eventually harmful. The critical differentiation between the two groups of alcoholics identified by the Subcommittee ('alcohol addicts' and 'habitual symptomatic excessive drinkers' respectively) was the state where 'loss of control' is evident (1952: 26-7). The report continues in defining 'loss of control' as: 'a disease condition per se which results from a process that superimposes itself upon those abnormal psychological conditions of which excessive drinking is a symptom' (1952: 27). This rather complex definition is best elucidated in Jellinek's 'The Disease Concept of Alcoholism'. In it, Jellinek describes loss of control as a 'loss of freedom' (Jellinek 1960b: 145) that develops progressively and becomes established after years of excessive alcohol consumption. Most importantly, he makes the claim that 'loss of control' and 'inability to abstain' are not interchangeable terms (1960b: 42).

It is in the same book that Jellinek developed fully his famous typology of alcoholism (Jellinek 1960b: 36–41), distinguishing five clinical subtypes of alcoholism: alpha, beta, gamma, delta and epsilon. Alpha alcoholism refers to a 'purely psychological continual dependence or reliance upon the effect of alcohol to relieve bodily or emotional pain' (1960b: 36), a behaviour that today could be described as 'self-medication'. According to Jellinek, the main harmful consequence of this type of alcoholism is impaired interpersonal relationships. The beta type represents the condition where alcohol consumption is responsible for the emergence of physical health problems (e.g., gastritis or cirrhosis) but without the presence of withdrawal syndrome (1960b: 37). The gamma type is probably the most significant one given that it presents itself with the following characteristics: 1) acquired tolerance to alcohol; 2) adaptations to cell metabolism; 3)

withdrawal syndrome and cravings; and 4) loss of control (1960b: 37). Moreover, it differs from the other types in its highly progressive nature with remarkable changes in psychological and social behaviour (1960a: 1342). Interestingly, it is at this point of the book that Jellinek politely disagrees with AA regarding their identification of this type of alcoholism, which he admits was the most prevalent form in the United States, as the only recognizable version of excessive drinking. Instead, Jellinek claims, there are members of AA who could be classified as belonging to the alpha subtype. The delta subtype seems to share the first three characteristics of the gamma subtype; however, the alcoholic seems to be able to control his consumption despite the presence of stronger withdrawal syndrome in comparison to the gamma type. Thus, while the gamma type of alcoholic has lost control but retains the ability to abstain for one or two days, the delta type retains control of consumption but cannot abstain, or as Jellinek puts it 'go on the water wagon' (Jellinek 1960b: 38). Finally, the epsilon subtype is left underdeveloped in Jellinek's work, but is associated with the condition of periodic alcoholism.

Despite being hesitant to use the term 'disease' apart from when addressing a very specific type of alcohol addiction, Jellinek is still considered one of the most important theorists of the 'disease' model of addiction (Bride & Nackerud 2002: 128). However, his partial endorsement of the 'disease' concept should not mask his consistent attempt to avoid biologically reductionist or determinist accounts of alcoholism. As Kelly (2019: 555) argues, Jellinek instead seemed to conceptualise the phenomenon with a deep awareness of the cultural and socioeconomic factors that interact with individual vulnerability, producing a diverse and complex set of excessive drinking patterns. Promoting a methodologically rigorous approach, he is credited with the introduction of a modern scientific perspective to the study of alcoholism.

2.4. The conceptualisation of addiction in the diagnostic nomenclature

It was during the same period that American psychiatry attempted, through the creation of the Diagnostic and Statistical Manual of Mental Disorders (DSM-I) (American Psychiatric Association 1952), to construct a classification of psychiatric disorders (Shorter 2013: 6). Heavily influenced by psychoanalytic ideas, the DSM-I classified addictions under the category 'Sociopathic Personality Disturbance' (APA 1952: 38), an umbrella term used to refer to individuals that 'are ill primarily in terms of society and of conformity with the prevailing cultural milieu, and not only in terms of personal discomfort and relations with other individuals.' Interestingly, in this edition alcohol and drug addiction are listed in the same category with disorders such as 'antisocial reaction' and 'sexual deviation' (APA 1952: 38-9). The trend continues into the second edition of

DSM (APA 1968: 45), in which alcohol and drug addiction are listed among personality disorders. This time, however, there is further elaboration on different types of alcoholism (APA 1968: 45): 'episodic excessive drinking', 'habitual excessive drinking' and 'alcohol addiction'. In the type of 'alcohol addiction', the presence of withdrawal syndrome and the inability to abstain are considered diagnostic criteria. According to Nathan and others (2016: 3.12), the first two editions of the DSM were stigmatizing addiction by including the phenomenon in a group of socially undesirable behaviours.

In their study, *Deviance and Medicalization: From Badness to Sickness* (1992) Peter Conrad and Joseph Schneider provide an historical analysis of how certain phenomena, namely alcoholism, homosexuality, criminality, and child abuse, understood as instances of 'deviance' were conceptualised as 'problems' to be addressed in medical terms. The most interesting insight offered by Conrad and Schneider (1992: 73) is that the medicalisation of deviant drinking was primarily led by non-medical groups and movements, although professional knowledge was necessarily involved in shaping the discourse. A common argument put forth by proponents of the medical model of addiction is that this approach allows us to adopt a non-punitive and less-stigmatising perspective of the problem. However, as Conrad and Schneider (1992: 250) indicate, the process of a medicalisation of a public problem is followed by the depoliticisation of personal distress. In a paradoxical way, mental health problems are individualised and the sociocultural elements of each behaviour become hidden or irrelevant. This process can be led not only by medical professionals but by social movements, patient organizations, and individual patients (Conrad 2007: 6). As we will see later in this dissertation, there are degrees in the process of medicalisation with some phenomena being completely medicalised and other less so, approached simultaneously from a medical and a moral point of view. However, the inclusion of substance misuse problems as a category in DSM is a clear indication that addiction has partially been medicalised.

Despite having already seen the publication of two different editions of a diagnostic manual, the American psychiatric community during the 1970s was still struggling with diagnostic procedures (Shorter 2013: 8). A seminal study comparing the diagnostic practices of British and US-based psychiatrists (Cooper and others 1972; Kendell and others 1971: 125) found that patients who diagnosed as suffering from schizophrenia in New York would be diagnosed as manic depressive or bipolar in London. The study was conducted by the *United States Steering Committee for the United States–United Kingdom Diagnostic Project* (Kendell and others 1971: 123). One of the members of the steering committee was a relatively young biometrician named Robert Spitzer with limited experience in clinical psychiatry (Shorter 2013: 9; Snyder 2016: 428) but with strong views on the influence that psychodynamic ideas had on the diagnostic classification of mental health

problems. Working for the New York State Psychiatric Institute, Robert Spitzer, as Shorter (2013: 8) succinctly puts it, 'couldn't wait to get rid of hysteria, neurasthenia, and the rest of the psychoanalytic baggage.' Similarly, already from 1958, the influential group of addiction researchers from the Addiction Research Center in Lexington, Kentucky considered psychoanalysis among the 'toxic theories' of drug use, that had to be replaced by those based on the pathophysiology of the brain (Campbell 2007: 27).

Spitzer's 1974 appointment as the Chair of American Psychiatric Association's DSM-III Task Force on Nomenclature and Statistics (Snyder 2016: 428) seemed to be the stepping stone for this endeavour. However, it was far from easy. Understandably, during the five years that were needed to draft the third edition of the DSM, the psychoanalytic community responded with persistence and confrontation (Bayer & Spitzer 1985: 187) to Spitzer's commitment in ostracizing the fundamentally psychoanalytic concept of 'neurosis' out of the DSM-III (Mayes & Horwitz 2005: 262). Faced with the prospect of the draft being rejected by the APA Board of Trustees unless the term 'neurosis' was included in some shape or form, Spitzer gave in to pressure (Bayer & Spitzer 1985: 194) and offered a compromise by including the term in parentheses. Thus, one might find, for example, in DSM-III the following formulations: Anxiety Disorder (or Anxiety Neurosis); Dysthymic Disorder (or Neurotic Depression); Depersonalization disorder (or Depersonalization Neurosis) (American Psychiatric Association 1980: 18).

Nevertheless, a major shift had happened in American psychiatric diagnosis. From a psychodynamic approach to mental health problems that attempted aetiological descriptions focusing on intrapsychic conflict, the discipline was moving towards an 'atheoretical' (American Psychiatric Association 1980: 7; Bayer & Spitzer 1985: 187) perspective which emphasized the need to identify diagnostic criteria and symptoms without assumptions about aetiology. From this point of view, the DSM-III conceptualised a mental disorder 'as a clinically significant behavioral or psychological syndrome or pattern that occurs in an individual and that is typically associated with either a painful symptom (distress) or impairment in one or more important areas of functioning (disability)' (American Psychiatric Association 1980: 6).

The adoption of such a framework is evident in how addictive behaviours were approached in DSM-III. These were grouped under the heading 'Substance Use Disorders' (American Psychiatric Association 1980: 163–179) and they were no longer associated with antisocial or sexually deviant behaviours. At the same time, the reader finds parts of the discussion on addiction in another section with the title 'Organic Mental Disorders' where the phenomena of intoxication and withdrawal are described as 'Organic Brain Syndromes' (American Psychiatric Association 1980: 104). Interestingly, the section on 'Substance Use Disorders' starts with a reflection on the

cultural context of intoxication (American Psychiatric Association 1980: 163). Mentioning the culturally appropriate recreational consumption of alcohol or the stimulating properties of coffee as examples where certain substances 'modify mood or behaviour', the text goes on to demarcate the discussion on 'behavioral changes associated with more or less regular use of substances that affect the central nervous system' (American Psychiatric Association 1980: 163). According to the authors of DSM-III (1980: 163): 'These behavioral changes in almost all subcultures would be viewed as extremely undesirable.' Indicating the influence of Jellinek's ideas, the text went on to argue that examples of these 'undesirable' changes in behaviour are 'impairment' in fulfilling social and occupational roles, loss of control and withdrawal symptoms (American Psychiatric Association 1980: 163). Most importantly, DSM-III proposed a clear differentiation between 'substance use', 'substance abuse' and 'substance dependence' with the last two considered as instances of 'pathological use'. What differentiated then 'substance abuse' from 'substance dependence'? The DSM-III suggested that for the diagnosis of 'substance dependence' the presence of either withdrawal or tolerance was necessary (American Psychiatric Association 1980: 165).

The emphasis on physiological symptoms for the diagnosis of 'dependence' would be challenged in the revised edition of the DSM-III (DSM-III-R), published under the direction of Spitzer seven years later (Shorter 2013: 14). Instrumental for the changes present in the description of addictive disorders was the contribution of a committee of addiction experts organised by American Psychiatric Association and the World Health Organisation (O'Brien 2010: 866). The members of the committee agreed on the definition of substance abuse as a behaviour characterised by compulsion, loss of control and substance-seeking. However, there was an important disagreement on the label that should be used in DSM, with members who were clinicians choosing the terms 'addiction' or 'addictive disorders', and the non-clinicians preferring the term 'dependence' since the term 'addiction' could be perceived as pejorative and thus alienating (O'Brien 2010: 866). Clinicians responded to that concern with the argument that 'dependence' as 'withdrawal' and/or 'tolerance' could be detected in the pharmacological treatment of pain, anxiety and depression, which does not necessarily involve the drug-seeking behaviour found in substance abuse. Referring to 'addiction' as 'dependence' would risk overlooking the non-physiological elements of substance abuse. Eventually, the term dependence was chosen by the committee by the margin of one vote (O'Brien 2010: 866).

Perhaps in an attempt to address this chasm, DSM-III-R (American Psychiatric Association 1987: 166) introduced behavioural symptoms in the diagnosis of the 'Psychoactive Substance Dependence' such as: inability to control the amount consumed despite recognising

that the use is excessive; spending disproportionate amounts of time in activities dedicated to the procurement of the substance; abandonment of non-substance related social, occupational and recreational activities; and presence of psychological or physical problems caused by the substance abuse (American Psychiatric Association 1987: 166-167). The text makes clear that diagnosis of 'dependence' does not require the identification of all those symptoms, and the period of their presence is also important (for at least one month) (American Psychiatric Association 1987: 166).

These criteria indicate that the psychiatric community of that period promoted an increasing emphasis on the consideration of the experience of addiction as a whole rather than focusing mostly on the quantitative levels of use or abuse of psychoactive substances. Instead, the extent to which a state of avoiding or excluding other activities (social, relational and occupational) is present, becomes a decisive factor for the diagnosis of addictive disorders. This trend continues in the 4th edition of DSM where the chapter 'Substance Use Disorders' is renamed to 'Substance-Related Disorders' to indicate a wider consideration (Nathan and others 2015: 3.15). DSM-IV (American Psychiatric Association 1994: 176) attempted to distinguish between 'substance use disorders' referring to substance abuse and substance dependence and 'substance-induced disorders' which referred to problems associated with use of psychoactive substances such as 'substance-induced delirium', 'substance-induced amnesic disorder', etc. An important differentiation from previous editions is the assertion that 'neither tolerance nor withdrawal is necessary or sufficient for a diagnosis of Substance Dependence' (American Psychiatric Association 1994: 178). This statement can be read as an attempt to retain the term 'substance dependence' even in the absence of physiological symptoms such as tolerance or withdrawal.

During the 1990s the unprecedented progress in neuroscientific research methods and techniques could not leave the field of addiction untouched. This decade, designated by US President George H. W. Bush as 'The Decade of the Brain', saw the intensification of neuroscientific exploration with important discoveries about the neural substrate of addiction. The expansive development of brain-imaging technologies allowed the detailed examination of neural pathways, the mapping of different receptors and the further understanding of the mesolimbic dopaminergic reward pathway. Increased funding and public campaigning were also significant factors in the increasing influence of the 'brain disease' model among the scientific community (Courtwright 2010: 141; Macario and others 2013; Metlay 2013: 146). Most importantly, the identification of brain mechanisms involved in various addictions (substance and not substance-related) provided a promise for a unified framework. However, conceptual and diagnostic problems remained rampant. One of them was the difficulty in distinguishing between the diagnosis of 'substance abuse' and 'substance dependence' (Hasin and others 2013: 836).

In the 5th edition of DSM (American Psychiatric Association 2013: xlii) the elimination of both categories ('substance abuse' and 'substance dependence') was promoted as a solution to this problem. In its stead, a distinction of severity was adopted classifying substance-related disorders as 'mild', 'moderate' or 'severe' according to the number of symptoms present. This decision taken by the DSM-5 Substance-Related and Addictive Disorders Work Group attempted to address the confusion that was created by the difficulty in differentiating the state of dependence caused by opiate pain medication and the dependence induced by illicit substances. As O'Brien (2010: 866), the leading psychiatrist of the Work Group, put it in a short article, the word 'dependence' has ended up being used 'to refer [both] to uncontrolled drug-seeking behavior [as well as to] the physiological adaptation that occurs when medications acting on the central nervous system are ingested with rebound when the medication is abruptly discontinued' (p. 866), thereby creating confusion that 'may have propagated current clinical practices related to undertreatment of pain' (p. 866). Also, in DSM-5 (American Psychiatric Association 2013: 491) each substance is associated with a specific substance use disorder covering 10 substances (alcohol, caffeine, cannabis, hallucinogens, inhalants, opioids, sedatives, stimulants, tobacco and other or unknown substances). The criteria differ for each substance, though most of the substance use disorders refer to the presence of craving, inability to stop despite negative consequences and unsuccessful attempts to quit. So, a mild substance use disorder is defined by the presence of 2–3 symptoms, a moderate substance use disorder by the presence of 4-5 symptoms, and a severe substance use disorder by the presence of 6 or more symptoms (American Psychiatric Association 2013: 534).

Another important development was the negative stance against the use of the term 'addiction' as a diagnostic category. In the text of DSM-5 one reads that: 'the word addiction is not applied as a diagnostic term in this classification . . . the word is omitted from the official DSM-5 substance use disorder diagnostic terminology because of its uncertain definition and its potentially negative connotation' (American Psychiatric Association 2013: 485). The adoption of this position by APA reminds us of the approach taken by the Harvard University-based psychiatrist Howard J. Shaffer who already from 1997 had claimed that the use of the term 'addiction' contributed to a 'conceptual chaos' (1997: 1573). However, apart from eliminating traditionally used terms such as 'dependence', 'abuse' and even 'addiction', the 5th edition of DSM also offered certain innovations. The inclusion of a non-substance related disorder in the chapter 'Substance-Related and Addictive Disorders' is without doubt the most significant one. For the first time in the history of DSM, pathological gambling is included in the same chapter as substance-related addictions (American Psychiatric Association 2013: 585). Until then, pathological gambling was included in other chapters conceptualised as an 'impulse control

disorder' (Pinna and others 2015: 380). According to Marc Potenza (2014: 1), a well-known researcher in the field, the grouping of pathological gambling (renamed as 'gambling disorder') with substance-related disorders in DSM-5 was based on scientific evidence suggesting similarities between the two conditions in the clinical, biological and phenomenological level. Finally, DSM-5 included 'Internet Gaming Disorder' as another condition that requires further study (American Psychiatric Association 2013: 795) intensifying the growing interest in the emerging area of 'behavioural addictions' (Petry & O'Brien 2013: 1187).

2.5. Conclusions

As seems to be the case for most areas of knowledge, scientific and expert formulations regarding the phenomenon of addiction reveal theoretically important and clinically useful aspects of the problem. Simultaneously, these formulations reflect public health priorities and sociocultural attitudes that on the surface are unrelated with the adoption of a 'neutral', 'value-free' epistemological approach. The insistent attempts by the American Psychiatric Association to expel the term 'addiction' from nosological and diagnostic formulations claiming that the concept is, at the same time, a cause of confusion (on the epistemic level) and stigmatization (on the social policy level), make evident that contemporary scholars and researchers consider both the clinical relevance and the social impact of their approach. Nevertheless, this indicates that the scientific and political dimensions of addiction studies are ultimately indistinguishable. Mental health professionals and the general public are encouraged to treat addiction as a 'brain disease' partly because there is a growing body of scientific evidence exhibiting the neural mechanisms involved in the process of becoming addicted to a substance or pursuit, but also in part because understanding the phenomenon as a 'disease' deflects the often-articulated assumption that addicts are morally questionable individuals lacking self-control and will-power. The fact that addiction experts still have to defend such a view manifests the uncomfortable truth that, despite remarkable advances in neuroscientific experimentation, statistical manipulation and therapeutic interventions, theorising addiction remains within the bounds of a very old debate between moralization and medicalization. More than two hundred years since Benjamin Rush introduced the idea that addiction is not a moral vice but a 'disease' to the clinical literature, the exponents of the 'brain disease' model insist on presenting their approach as a theoretical and therapeutic novelty.

Such a state of intellectual stagnation reflects something more than just the shortcomings of neurobiological reductionism and biomedicalization in the field of addiction studies. To the contrary, it reveals that despite being allocated extensive funding and being thoroughly researched

for decades, addiction remains an enigmatic condition at the crossroads of moral responsibility, physical dependence and what is considered 'acceptable' pleasures. For, if the diagnosis and treatment of addiction is still a controversial area of study, it is because the phenomenon presents at the highest intensity the fundamental contradiction, which is by no means an antithesis, between experiencing individual pleasure and fulfilment of social roles. This is a process that Sigmund Freud's *Civilization and its Discontents* (CD: 115), placed at the foundation of human life when he discussed the sacrifices in terms of pleasure principle that were necessary to live in an organised society. To a certain extent, the addicted individual manifests the paradoxes and inconsistencies of a social organisation oriented simultaneously around the achievement of pleasure and its prohibition, for the attainment of 'higher', morally acceptable objectives. Given the essential position that the feeling of pleasure has in the experience, clinical presentation, and the treatment of addiction, I claim that an exploration of the prominent neuroscientific models of the phenomenon should focus on the various ways they attempt to approach the question of pleasure and compulsion. Adopting this perspective permits us to finally understand that addiction is a condition that transcends the bipolar distinction between moral vice and 'brain disease', revealing its fundamental place as an inherent possibility of human life. In the next chapter I will attempt to outline the Brain Disease Model of Addiction and to explore some of the criticisms that have been expressed regarding its accuracy and usefulness. This will constitute the basis for developing an alternative, technophilosophical approach that is going to be discussed in chapters 4 and 5.

Chapter 3: The Brain Disease Model of Addiction and its criticism

> Among the most recently discovered is a region within [the hypothalamus] […] which on stimulation gives rise to a strongly pleasurable sensation […]. Evidently all the desirable things in life are desirable only insofar as they stimulate the pleasure center. To stimulate it directly makes all else unnecessary.
>
> —Isaac Asimov (1965: 188)

3.1. Introduction

In the fall of 1974, an article titled 'The mysterious experiments of Dr. Robert Heath in which we wonder who is crazy and who is sane" (Rushton 1974) was published in the New Orleans-based alternative magazine *Vieux Carre Courier*. The author of this article, a journalist named Bill Rushton attempted to expose what he considered as the inhumane experiments conducted by the psychiatrist Robert Heath, who was at the time the Chairman of the Department of Psychiatry and Neurology at Tulane University in New Orleans (Frank 2018: 133). Heath had been experimenting with deep brain stimulation (DBS), the electrical stimulation of subcortical areas, since the early 1950s, however, his latest pieces of published research (Heath 1972a; 1972b) had drawn negative attention to his activities. In a sociocultural context that saw increasing preoccupation with uses and abuses of psychiatric practices,[18] Heath's treatment of a homosexual patient under the nickname B-19 caused outrage. As we read in Heath's relevant publications (1972a: 578; 1972b: 4), B-19 was a 24-year-old patient diagnosed with temporal lobe epilepsy and a prolonged history of drug abuse. According to Heath (1972b: 7) 'one aspect of the total treatment program for this patient was to explore the possibility of altering his sexual orientation through electrical stimulation of pleasure sites of the brain.' As if the use of DBS as conversion therapy was not controversial enough, Heath had secured with the help of New Orleans District Attorney Jim Garrison[19] (Frank 2018: 126) the permission to use a 21-year-old female sex worker who would have heterosexual intercourse with patient B-19, while Heath's team manipulated electrical signals to his brain claiming to have 'successfully' converted him to heterosexuality. The logic of this 'treatment' was that with B-19 pushing the button stimulating his brain's 'pleasure' sites while watching

[18] As an indication of the zeitgeist, the influential movie *One Flew Over the Cuckoo's Nest* based on the homonymous 1962 novel by Ken Kesey was released only a few months later after the publication of Rushton's article.

[19] Famous himself for his investigations into the assassination of US President John F. Kennedy (Garrison 1988).

heterosexual explicit videos, a connection was reinforced between his activation of the 'pleasure' centre and the heterosexual stimuli, promoting the 'learning' of a new sexual orientation.[20] At the same time, in his other article about B-19 (Heath 1972a), it was suggested that smoking marijuana had harmful effects based on Heath's experiments with rhesus monkeys. According to Baumeister (2000: 273), who examined the DBS research conducted in Tulane University from a bioethical point of view, Heath's purported anti-marijuana publications as well as his active endorsement of conversion therapy in the era of a battle for the de-pathologization of homosexuality, angered both cannabis users and the New Orleans homosexual community (a member of which was Rushton himself), attracting negative publicity to the already controversial research activity on the uses of psychosurgery.

Approaching the controversy around the experiments of Dr Heath as only a case of medical ethics is an interesting endeavour but only a part of what would amount to a complete examination of his work. Instead, the Tulane research programme provides a snapshot of a fascinating period in the scientific and political history of the US-based psychiatric imagination during the years that followed World War II. It is worth noting that this period saw a paradigm shift from a psychoanalytic approach to mental illness towards an increasingly neurobiological understanding of psychic life. The two frameworks were not entirely incompatible. For example, Heath was trained as a neurologist at the Neurological Institute in New York (O'Neal 2017: 1), but an equally fundamental moment in his education was his fellowship under the influential psychoanalyst Sandor Rado in the Psychoanalytical Clinic of Columbia's College of Physicians and Surgeons, who, according to Campbell (2007: 24), 'undertook a lifelong effort to make an honest biomedical science of psychoanalysis'. According to Rado (1953), who was a student of Freud (Frank 2018: 26) at the time based in Columbia University, his research on schizophrenia showed that the pathology is characterised mostly by a 'crucial defect' which he termed as 'integrative pleasure deficiency' (Rado 1953: 411).[21] In other words, the patient lacks the psychic organisation necessary to experience pleasure and motivation, a state of mind described with the term 'anhedonia'. For Rado (1962: 44) psychophysiological mechanisms involved in directing the maximization of pleasure and the minimization of pain are an integral part of the struggle of the

[20] There is still dispute about the 'success' of this treatment. Heath claimed that the patient after the experiment engaged only in heterosexual activities, while other sources report that B-19 went on having both homosexual and heterosexual activities (O' Neal and others 2017: 6).

[21] Rado was also one of the most important psychoanalytic thinkers on the question of addiction (Campbell 2007: 21). In his article 'The Psychoanalysis of Pharmacothymia (Drug Addiction' (1997[1933]) he claims that 'pharmacothymia' is characterised by the wish of the individual to produce a 'pleasure-effect' (Rado 1997[1933]: 54) which however can only come at a cost.

organism to adapt to the environment. Heath (1974: 20) fully endorsed this view and believed that his neuroscientific investigations had confirmed the primary importance of the septal area, otherwise known as medial olfactory area, in facilitating the experience of pleasure. Hence, his experiments in DBS would identify the neural pathways with the aim to reverse the state of anhedonia—evident in a number of mental disorders—by the electrical stimulation of the related brain areas.

This intense interest regarding the localization of pleasure affects in the brain indicates that Heath was in the 1950s the facilitator of a short-lived dialogue between psychoanalysis and neurophysiology. His main hypothesis was that schizophrenia was caused by stress-inducing memories of childhood experiences that were expressed as disturbances of brain activity at the level of the cortex (Heath 1954: 40). The disturbed cortical activity impaired the input from the cortex to the septal area which in a feedback loop effect further disorganised cortical activity causing the symptoms of disturbed thought and perception that are found in people suffering from schizophrenia (Heath 1954: 41). However, it was the work of two other researchers which positioned the question of pleasure and the brain further away from the symbolic register of psychoanalysis towards a more behaviourist framework.

Although Robert Heath was the first to observe the pleasurable effects of brain stimulation in patients with schizophrenia (Baumeister 2006: 92), it is James Olds' and Peter Milner's experiment which is usually credited with the discovery of the 'pleasure centre' in the brain. In 1952, Olds had just graduated with a PhD in social psychology from Harvard University. During this period, he studied the influential book *The Organisation of Behavior and Neuropsychological Theory* (1949) by Canadian psychologist D.O. Hebb which impressed him greatly. Soon after he managed to secure a postdoctoral fellowship at McGill University where Hebb was based (De Haan 2010: 27). Hebb was surrounded by a group of young researchers who conducted various experiments influenced by the theories of their mentor. One of those researchers was Peter Milner who was investigating the brain activity of rats by placing electrodes in a brain area called reticular formation. The region of the brain, as part of the reticular activating system was at that period of particular interest at McGill University for its role in arousal and motivation (Milner 1989: 61).

As Milner recalls, Olds was introduced to him by Hebb 'as a social psychologist from Harvard who was interested in learning about the brain' (Milner 1989: 62). Olds compensated for his lack in technical knowledge with his gift in experimental methodology and imagination. With Milner's assistance (Thomson 1999: 6) he quickly familiarized himself with the techniques of implanting an electrode, stimulating a brain area, and recording the observed behaviour. His experimental investigation consisted primarily in studying the behaviour of rats who were placed

in an open field with four corners named A, B, C, D (Olds 1956: 107). Electrical stimulation of the reticular formation was chosen in order to study the ways rats experience positive or negative effects of brain stimulation. Olds observed that one of the rats kept returning to corner A when a mild electrical stimulus had been supplied. According to Thorndike's *Law of Effect* (1931: 101) and the principles of behaviourism, an increase in the strength or probability of a particular response to a stimulus within a particular environment signifies that the stimulus offers some kind of reward. Following this initial observation, Olds wanted to discover whether this behaviour was associated with the electrical stimulation of the reticular formation. At the same time, such a confirmation would require the sacrifice of the rat that exhibited this singular behaviour. Without wanting to do that, Olds followed the advice of a colleague in examining the brain of the rat using the X-Ray technique. He was surprised to find out that the electrode was not placed in the reticular formation but instead in the septal area. Interestingly, this was the same area that Robert Heath had focused his energy on during his exploration of anhedonia. Olds and Milner went on to replicate the phenomenon utilizing the device which has come to be known as 'Skinner's box'. In what is now considered one of the most significant moments in neurobiological research, Olds and Milner (1954: 419) implanted electrodes in various areas of the brain of 15 rats which were then placed individually in a device that allowed them to press a lever to electrically self-stimulate. The results showed that rats with electrodes placed in the septal area responded to the electrical stimulation by further pressing the lever indicating that the stimulus was rewarding (Olds & Milner 1954: 421). Likewise, they stopped pressing the lever when no electrical stimulus was supplied.

Olds' immediate conclusion was that the dominant at that time drive-reduction theory of reinforcement was wrong (Milner 1989: 64; Olds 1958: 315). This theory had been promoted by one of the main representatives of American behaviorism, psychologist Clark Leonard Hull. Hull (1943: 102) was interested in the systematic exploration of how human beings learn and adopt new habits. Crucial in his system was the idea that rewarding stimuli are associated with processes of drive-reduction. With the term drive, he meant the motivation to fulfill primary biological needs of the human organism such as thirst, hunger and sex (Hull 1943: 60). Hull believed that the overall purpose of human behaviour is to fulfill these needs which relates to the presence and absence of feelings of pleasure and pain (Hull 1958: 341). Then, as he writes, what functions as an incentive can be defined as 'that substance or commodity in the environment which satisfies a need, i.e., which reduces a drive' (Hull 1943: 131). In this sense, a behaviour is reinforced when it leads to the reduction of the drive.

Olds (1958: 315) opposed this theory on the grounds that it seemed to equate reward with the absence of pain or unpleasant motivation, in order to fulfil a primary need. On the neural level,

such a view would present a state of reduced brain activity as optimal because motivation was intrinsically connected with a negative excitation of the brain. Instead, Olds considered that his research indicated that electrical stimulation of specific brain areas could be rewarding in itself, meaning that reward or 'pleasure' could not be associated with a reduction of brain activity.

At this point, it is worth addressing one critical semantic problem that the scientific research community was facing at that time. Olds (1956: 105) initially presented his experiments as leading towards the discovery of the 'pleasure centre' in the brain. Such a formulation, despite being capable of catching the media's attention, seemed to present in concentrated form two ideas that were treated immediately as controversial. First, the term 'pleasure' appeared as the equivalent of the term 'reward', conveying a kind of linguistic freedom that was anathema to every behaviourist. Secondly, the concept of a 'brain centre' as evidenced by Asimov's quote at the beginning of this chapter, perpetuated a contentious habit of ascribing complex states of mind to very specific areas of the brain. Although Olds (1958: 316) continued to believe that the reward system should be considered a highly localized network of anatomically distinct brain structures, he discontinued using the controversial phrase 'pleasure centre' (Wise 1980: 92).

The question of the relationship between pleasure and reward and the possible localization of either/both at the neuroanatomical level remains pertinent even today. The term 'pleasure' is unavoidably implicated in discussions of ethical and political considerations. In contrast, the term 'reward' is used mostly as part of a more technical vocabulary about human behaviour. This does not imply that the term 'pleasure' has been exorcised from the neuroscientific parlance. Instead, the investigation of pleasure and the recognition of its importance for human evolution (Rozin 1999: 109), happiness (Loonen & Ivanova 2015: 2) and psychopathology (Watson & Naragon-Gainey 2010: 845) in the growing field of affective neuroscience seems to be one of the most prominent and promising research topics. So, to what extent do 'pleasure' and 'reward' overlap? According to Berridge and Kringelbach (2008: 473) 'pleasure' refers to a state of 'positive hedonic valence' as a conscious or unconscious reaction 'to the hedonic impact of a stimulus'. Although they indicate themselves the frustration caused by the different use of the same term by different people (Berridge & Kringelbach 2008: 473), their definition is no less problematic, seeming to define 'pleasure' by adopting a stimulus-response formula in which a 'hedonic' stimulus is followed by a 'hedonic' reaction. Such a formulation fails to explain whether the feeling of 'pleasure' is generated because the stimulus is in itself 'pleasure-inducing' ('hedonic') or because 'pleasure' is only one of the possible reactions of the CNS to a neutral stimulus. In other words, by defining 'pleasure' as the 'hedonic' (i.e., pleasurable) reaction to a 'hedonic' stimulus, they end up offering a tautological definition of pleasure.

The term 'reward' is no less conceptually ambiguous. In one article (Rolls 2000: 178) the term is defined in its opposition with the term 'punishment'. Thus, according to Rolls (2000: 178) 'a reward is anything for which an animal will work' while a 'punishment is anything that an animal will work to escape or avoid.' The online dictionary of the American Psychological Association (2021) claims that 'reward' is 'a lay word that is nearly synonymous with reinforcement', implying that rewards are stimuli, events and situations that given their pleasurable consequences reinforce, that is, increase the probability of repetition of learned behaviours. This definition indicates the behaviourist focus on the empirical elements of experience rather than the subjective state that accompanies it. What is observed is not the feeling of pleasure experienced by the experimental subject or participant but the level of repetition of a certain behaviour which allows the inference that if willfully repeated, such behaviour offers some kind of reward and hence it is probably pleasurable. Otherwise, the individual organism would have no other motivation to repeat it.

Heath's and Olds's ambitious projects are of historical significance for the study of addiction. They constituted attempts to grapple in the experimental laboratory with the complexities of the relationship between biological matter and important psychological phenomena. In a sense, given the relative simplicity of their methods but also the pervasive influence of their neuroscientific insight, these two research projects appear simultaneously distant and close to contemporary approaches of addiction. Their emphasis on the influence of subcortical brain structures on the experience of pleasure was entirely justified. Moreover, they offered a mechanism to describe what happens when feelings of pleasure take on pathological forms and develop into addictive pursuits. Consequently, their research was not a simple quest for the confirmation or rejection of a specific hypothesis, but an exploration of wider psychobiological functions related with pleasure, motivation, and learning. They are, also, inextricably connected with the research ethos cultivated in North America during the Cold War, when researchers often investigated the anthropotechnical potential of life sciences and especially that of neuroscience. It is no coincidence that both Heath's (Frank 2018: 142) and Olds's institution, McGill University (Williams 2019: 89–90) had some involvement in US government-led research projects on 'mind-control', manipulation and military uses of neuropsychological knowledge.

With this introduction, I want to propose a reading of those experiments as foundational moments of the dominant discourse in the field of addiction studies. It would be plausible to suggest that Olds's (in collaboration with Milner) and Heath's experiments were respectively the bright and the dark side of the emerging neuroscientific research programme. The first possibilities opened up for understanding the etiology of addiction and identified potential treatment targets providing an idea that addictive behaviour given specific circumstances is a destiny shared by all

mammals. The latter showed that brain circuits involved in the experience of positive affect are subject to manipulation with infinite possibilities for psychiatric treatments and research, but also for political and social control. As it might be expected, recent neuroscientific accounts of addiction trace their history more around Olds's and Milner's work rather than Heath's notorious and ethically questionable deep-brain stimulation experiments. It was in this context that addiction started to be conceptualised in concrete terms as a 'brain disease', setting the foundation of what is now referred to as the 'Brain Disease Model of Addiction' (BDMA).

In this chapter, I would like to present first, an account of BDMA as framed by its main exponents. Secondly, I consider it necessary to discuss emerging criticisms of BDMA. While the BDMA appears to be the most popular approach to the phenomenon of addiction in the medical and academic community, there is a growing wave of research and advocacy that challenge the assumptions and the limitations of this model. Here, I choose to focus only on those criticisms that engage with neuroscientific research. Since the main strength of the BDMA is its reliance on the conclusions of neuroscientific investigations, its critics should correspondingly focus on examining either the way these conclusions are drawn or how the methodology of these investigations is inaccurate and misleading. As it will be shown, critics of BDMA rarely challenge the methodological principles of the brain research that is the base of the BDMA. Instead, they approach this research from a different angle. As a historian of addiction, David Courtwright (2010: 144) observes, the controversy regarding whether addiction is a brain disease reflects even more important questions; questions that concern fundamental aspects of human life such as motivation and pleasure as well as the policies for their regulation. Following an exposition of BDMA and its criticism, I will conclude the chapter by indicating that both perspectives, despite their important contribution to addiction studies, are incomplete due to their lack of the technological perspective of the use of psychotropic substances and other potentially addictive pursuits. Chapters 4 and 5 of this thesis will attempt to provide a framework of addiction that includes this expanded perspective, focusing on evolutionary and sociohistorical aspects of addictive behaviours respectively. While retaining an important role for neuroscientific conceptualisations of addiction, this approach attempts to overcome the individualist and a-historical tendencies of the BDMA.

3.2. An overview of the BDMA

Perhaps, as a first step in approaching the BDMA, it would be interesting to see how the exponents of this view conceptualise its birth. I mentioned in the introductory chapter the widely cited

publication titled *Drugs, Brains, and Behavior: The Science of Addiction (2020)* issued by US-based National Institute on Drug Abuse (NIDA) and intended for the general public, where one finds a narrative of a dramatic transition from the darkness of ignorance to the enlightenment of science. In this booklet, full of brain images taken from neuroscientific research, Nora D. Volkow, the director of NIDA, writes:

> For much of the past century, scientists studying drugs and drug use labored in the shadows of powerful myths and misconceptions about the people with an addiction. When scientists began to study addictive behavior in the 1930s, people with an addiction were thought to be morally flawed and lacking in willpower (National Institute on Drug Abuse 2020: 2).

It was this lack of knowledge, according to Volkow, that guided public opinion towards a conception of addiction as a problem of moral constitution, and consequently prescribed only a punitive approach as a way out of this predicament (National Institute on Drug Abuse 2020: 2). However, the text continues, 'ground-breaking discoveries about the brain have revolutionized our understanding of compulsive drug use' (National Institute on Drug Abuse 2020: 2) leading to an important shift in how scientists and the public approach the diagnosis and treatment of addiction. In accord with the 'Whiggish' (Courtwright 2010: 138) spirit of the text, this shift is attributed to the success of scientific investigations ('thanks to science') (National Institute on Drug Abuse 2020: 2) which offered the evidence that 'addiction is a medical disorder that affects the brain and changes behavior'. Hence, contemporary addiction specialists are presented as having a panoply of prevention and treatment strategies while the research focuses on identifying genetic and environmental risk factors (National Institute on Drug Abuse 2020: 2). Although Volkow celebrates the success of the BDMA, she admits that there is still a lot to uncover as the complete understanding of why people become addicts and how substances produce changes in the brain that lead to a state of compulsion has not been achieved (National Institute on Drug Abuse 2020: 2).

Nevertheless, a more sober approach considers the emergence of the BDMA as a truth produced (if one adopts the Foucauldian parlance) in a specific historical, cultural, and technical environment which integrated the discourse of a certain part of the medical community as well as the opinions expressed by advocacy groups. As we saw in the previous chapter, the idea that addiction could be framed as a disease was present for at least 150 years before the time that Volkow traces its origins. This was part of a process that Courtwright (2010: 138) has termed 'beneficent medicalization', the transition from mental illness (including addiction) as a form of possession or moral depravity to a medical problem. The important change that happened during the 20th century is that the medical problem became localizable in a specific organ, the brain, in a

development that, according to historian of science and technology Nancy Campbell (2007: 200), offered 'a unified framework for a problem-based field in conceptual disarray.' At the same time, such a localization in the brain allowed the de-localization of addiction away from the complex social milieu. Although it is difficult to find an exponent of the BDMA that doubts the importance of psychosocial factors in the occurrence of addiction (Heilig and others 2021: 2), the vast amounts of funding spent on neuroscientific projects (Miller and others 2012: 292) in comparison to the meagre funding of endeavours that focus on social elements of the phenomenon can adequately reflect where the emphasis is placed.

Although Volkow (National Institute on Drug Abuse 2020: 2) presents the emergence of the BDMA as an autonomous process of scientific discovery, the history of neuroscientific knowledge in North America complicates the picture. According to Vrecko (2010: 58), it seems that the framing of addiction as a brain-disease was partly a development created by the extensive amounts of funding that were offered to addiction specialists in the beginning of US President Richard Nixon's 'War on Drugs'. Vrecko (2010: 58–59) speaks of a 'state-science alliance' which made neuroscientific research a mandatory consideration for all stake holders in the policies and methods of preventing and treating addictions. He also presents a compelling case of the fundamental role played by research on how the activity of brain receptors was modified under the influence of psychotropic substances (Vrecko 2010: 59). Vrecko mentions that the impetus for this research programme was provided by a short paper written by Harry Collier in *Nature*, hypothesizing how psychotropic substances created a state of dependence by increasing or decreasing the amounts of endogenous substances available to receptors, as well as by the attempt of the 'living system' to adjust the number of these receptors to reduce the distortion caused by psychotropic substances (Collier 1965: 182). Following this publication, various research groups started investigating primarily the function of opiate receptors 'simply because funding had been readily available for researchers whose projects could be aligned with the US government's War on Drugs' (Vrecko 2010: 59). Other scholars, such as Courtwright (2010: 139) have attributed the advent of BDMA to a combination of a tendency of relevant agencies to prioritize funding and human resources to the study of neural substrates of addiction with a related progress in laboratory techniques and experimental methods. These choices led to important advancements such as the identification of an endogenous opioid system and the mapping of receptors involved in the brain pathways activated by psychotropic substances.

Equally decisive was the cultivation of a symbiotic relationship between the research community studying addiction and the mass media (Reinarman 2005: 314). It was not only that the latter were eager to propagate the results produced by the former. Addiction specialists

advocating for the BDMA quickly understood the importance of public engagement in dominating the disease–discourse on the phenomenon. Nancy Campbell (2013: 244) has theorised, for example, how a programme like *The Oprah Winfrey Show* perpetuated a view that addiction is a disease of the brain. The relationship between mass media and researchers had led to a peculiar exchange that is probably rare in other fields of expertise. For instance, one of the favourite metaphors used by exponents of the BDMA is that psychotropic substances 'hijack' the reward system of the brain, which is a product of evolution directed towards the acquisition of natural, 'normal' rewards (more on this later). This metaphor describes drugs and alcohol as 'insidious forces' (Lewis 2017: 8) that take advantage of natural biological mechanisms to exert their malicious effects. Interestingly, the metaphor was coined for the first time by journalist Bill Moyers in a 1997 PBS special programme on addiction (Campbell 2010: 93). Since then, as it will be shown, 'high-jacking' has become a constant representation of the way psychotropic substances lead to addiction.

By contextualizing the emergence of the BDMA I do not intend to challenge the validity and the reliability of its claims. Instead, a more fruitful approach would be to engage with these claims and understand their strengths and limitations with an awareness that this model of addiction—like every scientific model—was shaped under specific historical, epistemological, and technological possibilities. In the next paragraphs I would like to focus on the core ideas about the theoretical and empirical foundations of addiction as chronic brain disease expressed by the researchers who endorse the BDMA

Often, the BDMA is simply referred to as the 'Disease model' of addiction and the former should be considered a newer version of the latter. From this perspective, addiction constitutes a clinical entity, a clearly defined 'chronic, relapsing disorder characterized by compulsive drug seeking and use despite adverse consequences' (NIDA 2020: 4). Crucially, a close reading of research that follows the BDMA indicates that what is disordered is the brain of the individual, exhibiting changes in the circuits that regulate reward, stress, and self-control. In other words, addiction is perceived as a pathology of a specific organ, much like heart disease. The authors of the aforementioned text issued by NIDA expand on this comparison by claiming that similar to heart disease, addiction disrupts the physiology of an organ, has deleterious effects which without treatment are potentially chronic and lethal (National Institute on Drug Abuse 2020: 4). Exponents of the BDMA understand addiction as the severe stage of substance use disorder defined by DSM-V (APA 2013: 498). This is mainly defined as the stage where initially voluntary use of psychotropic substances has been replaced by loss of control and compulsive use (National Institute on Drug Abuse 2020: 6). In drawing this clinical picture, the researchers following the BDMA paradigm

rely on neuroscientific studies that indicate observable structural and functional changes in the addict's brain that interfere with judgment, decision-making, learning, and memory (National Institute on Drug Abuse 2020: 6). These changes are caused by continuous exposure to psychoactive substances leading to loss of control, difficulty in displaying flexibility of behavioural responses and, critically, negative affect when in withdrawal (Volkow & Koob 2015: 677).

It is important to consider which brain structures are hypothesized as impacted by the recurrent use of drugs and other addictive pursuits. Although addiction modifies the function of the brain as a whole, according to neuro-imaging studies there are five neuronal circuits which are substantial in the experience of addiction: '(1) mesolimbic dopamine system, (2) ventral striatum, (3) ventral striatum/ dorsal striatum/thalamus circuits, (4) dorsolateral frontal cortex/inferior frontal cortex/hippocampus circuits, and (5) extended amygdala' (Koob & Volkow 2010: 227). These structures are thought to be involved in important processes of the human mind such as motivation, memory, inhibition, self-awareness, and stress reactivity (Koob & Volkow 2010: 226). As one would expect, according to Koob and Volkow (2010: 226), the course of addiction is also subject to the effects of genetic, developmental, and environmental factors which interact in a dynamic fashion creating a different trajectory for different individuals. People's susceptibility to addiction is also influenced by their vulnerability to these genetic, developmental, and environmental factors. Family history containing maladaptive child-rearing patterns, exposure to drugs at early age, inhabiting constantly stressful environments, co-morbidity with other mental health disorders and lack of sustained social support, have a negative impact on the chances one has to avoid falling into the trap of addiction (Volkow and others 2016: 367).

Epigrammatically, the BDMA suggests that due to neuroadaptations following repeated drug use, the initial feelings of pleasure and excitement of the drug user are substituted by intense cravings for psychotropic substances and negative affect when these cravings are not satisfied (Volkow and others 2016: 363). The negative emotional states accompanying psychological and physical withdrawal often lead to relapse, with the individual incapable to exit the vicious cycle. The explanation given by Volkow and others (2016: 363) is that addicts relapse despite their willingness to abstain because psychotropic substances have compromised the function of brain regions responsible for decision-making and control of inhibitions, rendering these individuals exposed to the powerful effects of cravings. The same schema has also been applied to the so-called behavioural addictions (e.g., food, sex, and gambling) framed in this context as disorders of self-regulation, although the application of BDMA to obesity has been the object of controversy (Volkow and others 2016: 364).

As I will show later in this chapter, the BDMA is not without its critics. A lot of researchers have emphasized that addicted individuals retain a level of choice even in instances where the cravings seem overwhelming. This criticism is addressed in a recent defence of the BDMA (Heilig and others 2021: 6), by indicating that although addicts have freedom of choice, their mental faculties involved in making choices have been compromised. Exponents of the BDMA often refute the criticism by explaining the motivation of their critics. For example, Volkow and others (2016: 364) interpret the resistance against the BDMA as an outcome of 'deeply ingrained values about self-determination and personal responsibility that frame drug use as a voluntary, hedonistic act'. From this perspective, the BDMA is viewed as a progressive evidence-based understanding of addiction opposed to conservative and punitive attitudes. Before engaging in a detailed discussion of these arguments it is important to consider more extensively the neurobiological explanations of the phenomenon that constitute the basis of the BDMA.

3.3. The three stages of addiction

Exponents of the BDMA often describe the phenomenon of addiction as a cycle involving three stages: '1) binge/intoxication, 2) withdrawal/negative affect, and 3) preoccupation/anticipation' (craving) (Koob & Volkow 2010: 217; Volkow and others 2016: 364). As they explain, these three stages are in constant interaction with each other and are caused by neuroplastic adaptations in specific brain structures (Koob & Volkow 2010: 218) leading eventually to addiction which is conceived as a disease involving compulsive use, loss of control in consumption of the substance and negative affect while abstaining. Using behaviourist terms, the BDMA perceives addiction as a transition from positive reinforcement to negative reinforcement (Koob 2016: 166). The concept of reinforcement refers to the process of learning that is based on the association of a behaviour with reward and punishment (Aquili 2014: 1). Positive reinforcement is the increase of a probability of a behaviour because the latter provides a rewarding outcome. Negative reinforcement is the increase of a probability of a behaviour because the latter withdraws an unpleasant outcome. The cycle of addiction constitutes primarily the description of a shift from consuming psychotropic substances for their rewarding properties (positive reinforcement) to the consumption intended to avoid the unpleasant physical and emotional states experienced during withdrawal. According to Koob (2016: 166) during the positive reinforcement phase of drug abuse there is activation of brain molecules involved in feelings of pleasure and motivation (opioid peptides and dopamine respectively) while in the negative reinforcement phase, areas such as the extended amygdala (Koob 2003: 443) are of interest given the latter's important role in emotion and stress response. Espousing the same view, Volkow and others (2016: 365) describe the transition into addiction as

a process involving the disruption of largely three systems of the brain: the dopamine system, the glutamate system and the stress-control system.

If one attempted a more localized depiction of the brain areas involved in each stage of addiction as shown by neuroscientific studies (with both animals and human participants) this would be the following (Koob & Volkow 2010: 217): The key area for the binge/intoxication stage is the ventral tegmental area and the ventral striatum. For the withdrawal/negative affect stage is the extended amygdala. Finally, essential for understanding the third stage of preoccupation/anticipation is the study of areas such the orbitofrontal cortex, the prefrontal cortex, the basolateral amygdala, the hippocampus, and the insula which are involved in the experience of cravings. Equally important for this stage is the activity of the cingulate gyrus, the dorsolateral prefrontal, and inferior frontal cortices which regulate control of inhibitions. Although, as mentioned, the three stages interact with each other, the development of addiction can be seen as a series of neuroplastic changes that begin from the ventral striatum, extend to the orbitofrontal cortex and eventually impact the function of the prefrontal cortex, the cingulate gyrus and the extended amygdala (Koob & Volkow 2010: 217).

At this point, it is necessary to consider the important role played by dopamine in the experience of using and abusing psychotropic substances. Dopamine is a neurotransmitter whose function has been documented as fundamental in processes of learning and motivation (Wise 2004: 491). Disorders of dopamine activity have accounted for a large group of neuropsychiatric pathologies such as attention-deficit hyperactivity disorder, autism, Huntington's disease, bipolar disorder, obsessive-compulsive disorder, schizophrenia, Tourette's syndrome and Parkinson's disease (Previc 2009: 75). Except Parkinson's disease, all the other disorders have been associated with excessive dopamine activity and it is for this reason that pharmacological treatment often targets dopamine receptors with the aim to decrease the availability of the molecule in the relevant brain areas.

In the simplest terms possible, the activation of brain areas that belong to the reward system is facilitated by distinct increases in the release of dopamine (Volkow and others 2016: 364). The increased availability of dopamine in the receptors of the reward system creates an association of the rewarding properties with environmental stimuli (cues) that precede the behaviour that led to the feeling of reward. Studies have shown that as the individual starts using continuously, the dopamine cells stop 'firing' in response to the reward. Rather, they fire in response to the cues that according to the learning process of the first times of use have become associated with the delivery of reward (Volkow and others 2016: 364). In other words, after repeated experience of a rewarding activity, dopamine cells respond less during the process of its consumption and more during its

anticipation. This process follows the same pattern as described by Hebb (Bromberg-Martin and others 2010: 816) whose principle of neural communication can be summarized with the phrase 'neurons that fire together, wire together'. As Volkow and others (2016: 364) suggest, this stage of addiction takes place activating the same molecular mechanisms that facilitate learning and memory formation.

Thus, one of the ways dopamine is involved in addiction is its function of coupling environmental stimuli (places where use takes place, people who were present during use and perhaps most importantly the user's mental state prior to use) with the use of psychoactive substances (Koob 2016: 170). All these stimuli can elicit increased release of dopamine that leads to the experience of intense cravings (Volkow and others 2016: 366). A major tenet of the BDMA is that this process of conditioning between environmental stimuli and use of psychotropic substances is so resilient that it can give rise to cravings for a long time after wilful or imposed abstinence (Seo & Sinha 2015: 150), which indicates that recovery from addiction is a long-term process.

Following this logic, it would be expected that people suffering from addiction would exhibit higher levels of dopamine in the brain areas involved in reward compared to people that are not addicted to psychotropic substances. However, research shows that addicted subjects (both animals and humans) exhibit smaller increases in the levels of dopamine after drug use than people who have never used drugs (Volkow and others 2016: 366). The disturbance in the levels of dopamine inflicted by use of psychotropic substances can be considered the reason why addicts do not experience use of substances as rewarding as it was during the early stages of use, especially in light of their general lack of motivation by non-drug-related stimuli. Similarly, the stage of withdrawal is characterized by hypofunction of the dopaminergic system, mainly decreases in dopamine release as well as changes in D2 receptors, which might be a neuroscientific explanation of the symptoms of anhedonia and amotivation that addict reports during that stage of addiction cycle (Koob & Volkow 2010: 227). Apart from decreases in the activity of the mesolimbic dopaminergic system, during acute withdrawal, disturbances have been observed in the neurotransmission facilitated by serotonin in the nucleus accumbens (Koob & Volkow 2010: 223).

The nucleus accumbens is part of the ventral striatum, a small area of the brain that is crucial for the process of reinforcement following use of psychotropic substances (Koob & Volkow 2010: 221). Its location allows the reception of input from critical brain areas such as the amygdala, the frontal cortex, and the hippocampus and it is associated with action-oriented neural activity because of its connection with the extrapyramidal motor system (Koob & Volkow 2010: 223). According to Previc (2009: 68), dopaminergic neurons in the accumbens have been observed

as being activated during incentive-laden goal-directed tasks. Also, dopaminergic activation in the nucleus accumbens has been associated with the process of reward prediction error (Schultz 1998: 18) an important learning mechanism where predicted reward of a behaviour is compared to the actual reward that it offered (Keiflin & Janak 2015: 252).

In order to understand the role that the nucleus accumbens plays in the cycle of addiction as described by the BDMA, it is useful to consider how addictive disorders are framed as a transition from impulsivity to compulsion. According to exponents of the BDMA, addiction to psychotropic substances has elements of both impulse control disorder and compulsive disorders (Koob & Volkow 2010: 218). While impulse control disorders are associated with mechanisms of positive reinforcement, compulsive disorders are associated with negative reinforcement and automaticity (Koob & Volkow 2010: 218). In terms of emotions, impulse control disorders describe a state of tension and arousal before surrendering and proceeding into the impulsive act which is followed by feelings of pleasure and relief. On the other hand, compulsive disorders are associated with feelings of anxiety and stress before the act and relief from stress after its execution. According to Koob and Volkow (2010: 218) addiction is characterized by impulsivity at the early stages and a combination of impulsivity and compulsivity at the later stages. In less technical terms, the addicted individual initially uses psychotropic substances because of the arousal produced from expectation of the rewarding properties of the substance. After repeated exposure to the drug, it is the feelings of stress and negative affect that create the perception of substance use as a 'need', since it is the only through this act that they will be able to achieve relief from stress.

The nucleus accumbens is associated with impulsive drug seeking and use (Lewis 2017: 9). Disruptions of dopaminergic and GABA-ergic activity in the core and shell of the nucleus accumbens has been associated with impulsivity in experiments with rats (Jupp and others 2013: 1523). Everitt and Robbins (2013: 1946) suggest that the shift from impulsive drug use to a formation of habit characterized by compulsive drug seeking corresponds to a shift from dopaminergic activity in the ventral striatum to the dorsal striatum accompanied with impairment of inhibition mechanisms localised in the prefrontal cortex. In 2004, addiction researcher Roy Wise speculated that the release of dopamine in the dorsal striatum facilitates the 'stamping in' of the procedural memory traces which are essential for habit formation (Wise 2004: 492). This transition is also understood in behaviourist terms. Animal studies indicate that drug self-administration involves primarily a cognitive process where behaviour follows the pattern 'action (A) leads to outcome (O)', being essentially goal-directed. However, at later stages another more automatic process takes over where environmental stimuli (S) become associated with certain behavioural responses (R) (Everitt & Robbins 2013: 1946). With regard to addictive behaviours, this transition

constitutes the emergence of compulsive habits of drug seeking that are controlled by dorsal striatum. The stimulus leads to a behavioural response of drug-seeking, 'without the need for a reinforcing outcome' (Lewis 2017: 9). According to Everitt and Robbins (2005: 1486) it is this state of compulsion that characterizes addiction as opposed to other patterns of substance use. Addicted individuals seek and consume psychotropic substances while ignoring alternative reinforcers and despite the negative consequences (Everitt & Robbins 2013: 1950).

Perceiving the neurobiology of addiction as only a disorder of the mesolimbic dopaminergic system would be an incomplete understanding of the phenomenon. A central tenet of the BDMA is that the role of the prefrontal cortex is equally important given that the area is involved in processes of planning, problem-solving, decision-making, flexibility in the selection and initiation of action and impulse control (National Institute on Drug Abuse 2020: 16; Volkow and others 2016: 367). Previc (2009: 69) also mentions that the prefrontal dopaminergic system is crucial to maintaining control over behavior and processes related to thinking. Repeated drug use leads to the downregulation of dopamine (and glutamate) signalling in both the reward circuit and in prefrontal brain regions which have connections with the ventral and dorsal striatum (Volkow and others 2016: 367). Decreased expression of D2 receptors and reduced release of dopamine in both ventral and dorsal striatum have been associated with reduced activity in prefrontal regions (Volkow and others 2017: 745) suggesting that this might interfere with processes of inhibition control. Lewis (2017: 13) indicates that in cases of substance abuse and eating disorders the dorsolateral prefrontal cortex 'becomes partially disconnected from the striatum' mainly because the dopamine signalling in these areas are controlled by striatial outputs which are reduced with long-term addiction. He also notes that the reasons this disconnection takes place are not completely understood (Lewis 2017: 13). It is this disruption of prefrontal regions that, according to Volkow and others (2016: 367) accounts for the phenomenon where addicted individuals express their desire to quit but often end up surrendering to compulsive drug use. It also explains why adolescents are more vulnerable to addictive patterns of behaviour given that the prefrontal cortex during this period of development undergoes a significant process of re-organisation (Crews and others 2007: 194) and the area is involved in related behaviours such as risk taking, novelty and sensation seeking and social interaction.

A significant characteristic of substance use is the tendency of addicted individuals to ignore other 'natural' or 'normal' rewards (food, sex, etc.). Exponents of the BDMA attempt to attribute this behaviour in the way psychotropic substances affect the dopamine system. According to Volkow and others (2016: 366) repeated consumption of 'natural' rewards is followed by the ceased firing of dopamine cells. In contrast, addictive substances continue to increase dopamine

levels leading to an experience that is unusually rewarding and hence, motivates the user for further engagement with the addictive pursuit. Following the principles of motivational learning, one can imagine that a rewarding experience creates a neurochemical change that allows the brain to 'remember' it and hence seek it again without extraordinary cognitive effort eventually becoming a habit. As we have already seen, the increased dopamine levels lead to strong memory associations between the act of consuming the substance, the experience of pleasure and the registering of external cues that contextualise the act of consumption. According to NIDA (2020: 17) 'large surges of dopamine "teach" the brain to seek drugs at the expense of other, healthier goals and activities.'

The reader of this dissertation would have probably identified a major conceptual problem in how the BDMA discusses the role of dopamine in the phenomenologically distinct, experiences of pleasure and craving. In some expositions of the BDMA it is not clear whether dopamine is responsible for achieving pleasure or for inducing craving to addicted individuals. Sometimes, an impression is given that dopamine might be involved in both. A possible reason for this confusion might be that the behaviourist term 'reward' implies simultaneously mental states related to gratification and to a feeling of 'wanting' or seeking (Johnson 2013: 3). Regarding this problem the contribution by Robinson and Berridge (1993: 261; 2000: S94) remains fundamental.

The two researchers propose a distinction between the processes of 'wanting' and 'liking' (Robinson & Berridge 1993: 274; 2000: S102). Apart from being phenomenologically distinct, Robinson and Berridge demonstrate that these two mental states are localized in two different neural systems. Their theory framed addiction as a process of what they refer to as incentive sensitization. Until 1993 (but even later) when Robinson and Berridge published their theory, the main hypothesis was that the nucleus accumbens and the dopamingergic reward system in general were involved in the neural localization of feelings of pleasure or what they term as 'hedonic aspects of reward ("liking")' (Robinson & Berridge 2000: S102). Substance use entails a psychological process conceptualised as 'incentive salience' (Robinson & Berridge 2000: S91), in which perceptual stimuli associated with the consumption of the substance acquire a special value, become attractive and motivate behaviour (Robinson & Berridge 1993: 247). The two researchers also suggest that the motivation to engage in substance use ('wanting') cannot always be attributed to the feelings of pleasure ('liking') that this use elicits (Robinson & Berridge S94). Such a distinction is often observed in addicted individuals who experience compulsive urge to use substances even when the hedonic effects of the drug have been minimised.

In order to support their theory, Robinson and Berridge (2000: S104–05) mention both animal and human studies which indicate that the dopaminergic mesolimbic system does not

mediate the experience of hedonic effects. For example, disruption of the transmission of dopamine (with the use of dopamine agonists or antagonists, lesions, etc.) does not affect the ability of experimental rats to make judgements about the pleasurable properties of taste stimuli (Berridge & Robinson 1998: 339). Moreover, it seems that neurons of the nucleus accumbens discharge not during the engagement with the rewarding stimulus when one would assume the highest level of pleasure would be experienced, but during the time the subject anticipates the arrival of a reward (Berridge & Robinson 1998: 314). Interestingly, dopamine levels in the nucleus accumbens are increased by stressful or aversive stimuli (Salamone and others 1997: 344). In addition, increased dopamine neurotransmission in humans is 'neither necessary nor sufficient' to produce hedonic effects by psychostimulants (Robinson & Berridge 2000 S104–5).

From this perspective, the process of addiction entails a sensitization (i.e., becoming more 'sensitive') of the neural substrates of reward from substances and substance-related stimuli which with repeated use increase their appeal to the individual who consumes them. In saying this, Robinson and Berridge (2000: S99) remain in proximity to the claims made by Volkow and other exponents of the BDMA, since all of them emphasize the persisting nature of neural sensitization that makes addicted individuals vulnerable to relapse even after a long period in abstinence. A crucial observation, however, is that according to Robinson and Berridge (2000: S96) the process of sensitization should not be approached as an inevitable outcome of continuous use of substances. Other factors, such as the circumstances that contextualise substance use influence significantly the ability of substances to induce sensitization.

If dopaminergic systems are involved in the 'wanting' experience of substance seeking, which neural system underlies the experience of 'liking', the mediation of hedonic effects? In the first publication on the topic by Robinson and Berridge (1993: 274), systems based on opioid and GABA-ergic transmission were considered as possible candidates for the neural substrate of pleasure. Later it was suggested that opioid receptors located in the shell of the nucleus accumbens might mediate the experience of pleasure (Berridge & Robinson 1998: 341). In a more recent paper, published in *The American Psychologist*, Robinson and Berridge (2016: 672) claim that in contrast with the dopaminergic reward system of 'wanting', the process of 'liking' does not rely on dopamine and its biological substrate is in 'smaller and fragile neural systems.' It seems that the 'liking' system consists of 'hedonic hotspots' in the brain which interact with each other and are activated in various forms of pleasure including those derived by palatable food, substance use and even sociocultural rewards (Berridge & Robinson 2016: 672). One such hedonic hotspot is located in the area of the brain called ventral pallidum (Smith & Berridge 2007: 1595) a structure found inside the basal ganglia. A small lesion in experimental rats eliminates the experience of pleasure.

More specifically, following a research protocol exploring hedonic effects, lesioned rats exhibit a-typical signs of disgust after being given a sucrose solution (Berridge & Robinson 2016: 672).

In a sense, Robinson and Berridge (2000: S91) provide an important contribution to the BDMA without challenging its main assumptions. The conceptualisation of addiction as an outcome of neuroadaptations is similar to claims made by Volkow, Koob and others who attribute the compulsive urge to use drugs to alterations in brain systems. Indeed, the latter have emphasized how the incentive sensitization theory has "significant heuristic value" (Koob & Volkow 2010: 219). Kent Berridge (2017: 30), while discussing Lewis's (2017: 9) criticism of the BDMA (more on this in the following section), says that 'to call addiction a brain disease is not unreasonable' and although he and Robinson did not use the 'brain disease' label in their original formulation of incentive-sensitization theory, there are grounds to consider the neurophysiological changes following from repeated substance use as pathological. At the same time, he clearly expresses the opinion that incentive-sensitization does not override free will and addicts retain a certain level of choice (Berridge 2017: 32).

It is worth noting that for all the weight proponents of the BDMA model places on the concept of disease, what exactly is perceived as a disease is rather undetermined. Publications defending and explaining the BDMA seem to focus less on behavioural and clinical demonstrations of a pathology in the life of the individual and more on the identification of specific neuroadaptations that are considered to be abnormal. Therefore, the BDMA provides an interesting case where a prominent scientific theory of, purportedly, a disease entity focuses less on symptoms and more on neuroanatomical alterations that underlie the disease itself. Indeed, neuroscientists endorsing the BDMA rarely explore and advance the understanding of what exactly constitutes addiction as a disease apart from presuming an 'abnormal' brain.

3.4. The criticism of the BDMA

So far, I have tried to show which arguments the exponents of the BDMA have used in order to support their main thesis the addiction is a relapsing, chronic brain disease. In doing so, they rely extensively on neuroscientific research that implicates the mesolimbic dopaminergic system, the extended amygdala and the prefrontal cortex in three respective elements of addictive behaviour, the euphoric effects of substance use, the negative affect and physiological symptoms during withdrawal and the loss of control and disinhibition. In this final section, I would like to consider the criticism that has been addressed to the core ideas of the BDMA, not only in terms of maintaining an always necessary intellectual 'balance' but also to inform my own perspective on the phenomenon of addiction. As it will be rendered obvious in the next two chapters, I do not

intend to reject the overall perspectives of either side regarding the topic but to propose that a technophilosophical approach is necessary in conceptualizing addiction as a relation between the individual and the environment.

Although the BDMA is considered by a large part of the academic and lay communities as the only valid and scientifically accurate perspective on the phenomenon of substance abuse, various criticisms have been levelled against it. David Courtwright (2010: 137) has noted that in spite of the progress that neuroscientific research following the BDMA paradigm has brought to the study of learning and motivation mechanisms, the paradigm itself has occasionally been met with 'indifference, suspicion, and, in some cases, open resistance.' A regular criticism of the paradigm refers to the simple fact that epidemiological studies show that the phenomenon of spontaneous recovery is rather prominent and that a considerable percentage of addicted individuals often mature out of their addictions without treatment (Hall and others 2015: 106). For example, in a study about recovery from alcohol problem involving two population surveys, it was found that most of the participants (77.5% and 77.7%) had recovered from problematic drinking for one year or more without professional help and a percentage of them reported drinking in moderation while in recovery (Sobell and others 1996: 966). In perhaps the most significant epidemiological study investigating remission from nicotine, alcohol, cannabis and cocaine dependence (National Epidemiological Survey on Alcohol and Related Conditions – NESARC) which took place in 2001-2002 and included a sample of 43093 participants, it was shown that half of the cases of nicotine, alcohol, cannabis and cocaine dependence achieved remission 26, 14, 6 and 5 years, respectively, after the onset of dependence (Lopez-Quintero and others 2011: 657). However, processes of remission seem to be influenced by the type of the substance, the racial/ethnic group of the individual and the existence of comorbid mental health problems. As Calabria and others (2010: 741) mention, the evidence available regarding spontaneous remission is limited, its definitions are often characterized by imprecision and inconsistency and rates appear to be different across different substances. Therefore, further research is necessary to draw safer conclusions regarding the prevalence of spontaneous remission.

If addiction is a chronic relapsing disorder that according to the NIDA can only be managed successfully (National Institute on Drug Abuse 2020: 22) and never cured, how is it possible that people recover without specialist treatment? This fact might imply that the definition of addiction according to the BDMA applies only to a very specific group of people. According to Hall and others (2015: 106), this seems to be the case for addicted individuals who continue to use illicit substances into the fourth decade of their life despite harmful consequences. From this point of view, the loss of control potentially reflects significant changes in brain function.

Other critics have suggested that considering the BDMA as the only legitimate or the most important account of addiction limits the analysis of a very complex phenomenon to only one specific level, a tendency that has been termed as 'neurocentrism' (Satel & Lilienfeld 2014: 5). This has significant clinical implications since it fails to consider psychosocial factors in addiction and in recovery. The same authors challenge the idea that addiction is comparable to other physical illnesses, and this is especially pertinent to the question of recovery (Satel & Lilienfeld 2014: 7). Addiction recovery constitutes a difficult journey of challenging established cognitive and behavioural patterns, while a treatment for a physical illness like pneumonia can work 'even if the patient is in a coma' (Satel & Lilienfeld 2014: 7). It is worth noting that there is a stark antithesis between the biological level of explanation that exponents of the BDMA promote and the mainly psychosocial criteria that are used to diagnose substance use disorders. As Vrecko (2010: 53) notes, addiction is often attributed to genetic and physiological processes, but it is diagnosed and treated with reference to psychological and social capacities. In order to overcome this limitation, one would expect the use of biological diagnostic criteria to accord with the proposed biological explanation. There is a growing field of research for biomarkers of substance abuse, but the scientific community is still far from using them for diagnostic and treatment purposes (Volkow and others 2015: C).

Another point of criticism responds to the claim of exponents of the BDMA that the paradigm is beneficial because its conceptualisation of addiction as a compulsive habit following significant neuroadaptations reduces the stigma attached to addicted individuals (Volkow & Koob 2015: 677). This argument implies that the BDMA is more of a 'political' strategy rather than an accurate description of the phenomenon. As philosopher Hanna Pickard (2021: 993) has observed, often 'the question of whether addiction is a brain disease is not reliably distinguished from the question of whether labelling it this has beneficial consequences.' An important critic of the BDMA, psychologist Nick Heather has noted that at times exponents of this view respond to criticisms by accusing critics of lack of responsibility that puts at risk the health and social acceptance of addicted individuals (Heather and others 2018: 252), confusing scientific fact with policy priorities. Others have even suggested that the disease discourse of the BDMA might promote generalized access to treatment, but it has also functioned historically as a justification of punitive drug policies (Reinarman 2005: 308).

Despite the usefulness of these criticisms, I would like to focus on the refutation of what I consider the two main claims of the BDMA, which are: 1) addiction is a brain disease because repeated exposure to substances lead to neuroadaptations that affect the ability of the individual to process substances and substance-related stimuli, and 2) addiction is a disease because it is

characterized by a state of compulsion and loss of control. As it will be shown, criticisms of both points do not settle the dispute but provide interesting insights on the nature of addictive behaviour as it compares with other behaviours (pathological or not).

An important caveat in discussing the neurochemical changes caused by substance abuse is whether these changes are pathological. Pickard (2021: 999) perceptively proposes that in order to conceive addiction as an outcome of brain dysfunction, an account of what normal brain function looks like is also necessary. But this is not a simple task given the difficulties in establishing lines of causation, for example, between changes in grey matter and behaviour (Pickard 2021: 993). Exponents of the BDMA often insist how the brains of addicted individuals are different from those of non-addicts, however, 'statistical atypicality is neither necessary nor sufficient for pathology' (Pickard 2021: 999).[22]

However, as neuroscientist Marc Lewis (2017: 7) has suggested, there are grounds to perceive the observed neurochemical changes following substance abuse as similar to those produced by neuroplasticity following non-drug related intense, recurrent and highly motivational experiences. Lewis (2017: 11) also claims that it is difficult to draw the line between substance-related habits and other habitual pursuits of attractive goals in experience or in brain function. In general, he prefers to conceptualise addiction as a habit, or indeed, as a bad habit which is difficult to change (Lewis 2015: 42; 2017: 10). Lewis (2017: 12) mainly follows the theory (discussed earlier in this chapter) that the transition to addiction is facilitated by a shift in activation from the ventral to the dorsal striatum (Everitt & Robbins 2013: 1946), which corresponds to the stage where addictive behaviour appears as an automatic response to a stimulus. In this sense, the development to addiction is not a disease but one version of learning, a process of habit acquisition that crucially 'often leads to suffering' (Lewis 2017: 12). This formulation has significant implications for the aetiology of addiction too. While exponents of the BDMA concentrate mainly on the 'seductive' properties of a substance or activity that eventually lead to addiction (with a reduced consideration of other factors), Lewis (2017: 15) focuses on factors such as 'emotional turmoil during childhood or adolescence' which affect personality development in ways that lead the individual to seek rewarding stimuli intended to produce relief and comfort. From this point of view, addiction constitutes an aspect of personality development mediated by brain changes (Lewis 2017: 15).

The second important locus of criticism of the BDMA concerns the concept of compulsion. According to Leshner[23] (1997: 46) compulsive drug seeking and use is the 'essence of

[22] I consider this point further in Chapter 5 while discussing the concept of the norm in the work of Georges Canguilhem.

[23] Discussed in the previous chapter.

addiction.' Such a claim presents the addicted individual as deprived of all agency and control over their behaviour, at least, as far as substance-use is concerned. Heather (2017: 17) has identified two versions of compulsion in the BDMA: the strong and the weak version of compulsion. The strong version, a primary example of which is demonstrated in a study by Tiffany (1990: 154, cited in Heather 2017: 18), conceives drug-seeking and use as automatic processes that are independent of the psychological processes that control craving and urges. The weak version of compulsion rejects the concept of automaticity and considers addictive behaviour as a disorder of motivational control. An example of what Heather (2017: 21) terms 'weak' version of compulsion is Robinson's and Berridge's (1993) model of incentive-sensitization which retains a level of cognitive control of drug seeking, despite the important motivational appeal of substances.

According to evidence provided by various sources of research methodologies (epidemiological, experimental, and qualitative) addictive behaviour is a voluntary behaviour and not against the will of the individual (Heather 2017: 35). In this sense, it cannot be claimed that addiction constitutes a loss of agency as if one was pushed by the force of the wind, to follow Aristotle's famous example (Heather 2017: 17). However, Heather (2017: 35) still maintains that addictive behaviour is a disorder of choice while rejecting the idea of automaticity. Similarly, Pickard (2021: 996) suggests that although we should be agnostic about the understanding of addiction as a brain disease, we can be sure that substance use behaviours are goal-directed and not automatic.

3.5. Conclusion

In this chapter, I attempted to present an account of the BDMA and its criticism. I started by considering two important moments in the history of brain research which were fundamental in framing questions of pleasure, motivation, and learning in neuroscientific discourse. From the examination of these two projects as well as the neurobiological arguments put forth by the exponents of the BDMA, we can conclude that addiction research is a complex network of discourses that are deeply influenced by sociopolitical and ethical concerns. Contrary to what is often believed to be a settled debate, the concept of 'brain disease' has been increasingly challenged from various disciplines. Without ignoring the significant progress in our understanding of motivation and learning that exponents of BDMA have facilitated so far, the model has failed to provide a sustainable argument about the experience of compulsive urges and loss of control considering also that whether the addict retains the ability to choose is not a settled question. Some scholars indicate that addiction is a disease primarily in the sense that individuals cannot act

otherwise due to the loss of control, while others indicate that addicted individuals have agency—evidenced by epidemiological studies of spontaneous remission or recovery (Spinelli & Thyer 2017: 441)—and contend that addiction as chronic brain disease might apply only to a small clinical sub-group with more complex needs (Goldberg 2020: 314). Perhaps, a more modest approach would be to consider the possibility that it is not entirely clear which neuroanatomical events and environmental conditions enable the subject to make certain choices and avoid others.

Although I tend to agree with Heather (2017) and Pickard (2021) that addictive behaviour is not subject to automatic processes, in the next two chapters I would like to present an argument that addiction could be considered a process of automation of the psychical apparatus in the same way technological artefacts automatize other aspects of our life. I will discuss evolutionary aspects of substance use and other potentially addictive behaviours indicating that in order to understand addiction to substances, it is necessary to examine what these substances "do" and have done in the past. Then I will proceed in questioning the disease concept of addiction as put by proponents of the BDMA, providing an alternative approach based on the work of Georges Canguilhem. As it will be shown, while addicted individuals retain a certain level of conscious control over their use of addictive substances/activities, it eventually becomes extremely difficult to conceive and pursue their life without them.

Chapter 4: Psychotropic prostheticisation and the question of addiction

> The human transition from extreme vulnerability to immense power is, however, a journey that is fraught with challenges. Understanding the nature of these challenges is crucial to understanding the potential adaptive advantages of intoxication. We get drunk because we are a weird species, the awkward losers of the animal world, and need all of the help we can get.
>
> —Edward Slingerland (2021: 70)

4.1. Introduction

One of the main paradoxes of the Brain Disease Model of Addiction (BDMA) is that despite relying heavily on neurobiological evidence, its main formulation lacks reference to fundamental biological principles. Conceptualizing addiction as a disease of the brain, proponents of the BDMD focus primarily on neuroadaptations at the level of specific brain structures, but neglect to consider the biological processes of the addicted individual as a living organism. Yet, an exploration of addictive behaviour from this point of view appears to be necessary for an attempt to develop an understanding of addiction that is informed by biological knowledge without neglecting the impact that environmental factors have on the transition from habit to an addictive behavioural pattern. In other words, the neurobiology of addiction needs to be supplemented by an ecology of substance use that would examine the evolutionary and environmental aspects of this behaviour.

As part of this endeavour, a discussion of the concept of homeostasis seems pertinent. Homeostasis is often defined as the ability of a living organism to adjust its internal states following fluctuations in the conditions of its external environment in order to maintain a certain level of stability (Torday 2015: 575). Thermoregulation, the regulation of body temperature, is perhaps the most obvious case of homeostasis. Human beings need to be in a specific range of environmental temperatures to survive and in any instance outside this range a functional readjustment of their behaviour and a technological modification of their milieu (extra clothes, heating, air-conditioning, etc.) are required. In other words, one of the primary biological processes of all living organisms, including those of humans, is to preserve their existence and functionality in environments that

can be demanding, challenging or uninhabitable. In order to indicate the active role that organisms play in maintaining their identity to an approximate degree, ecologists have introduced the concept of adaptability, defined as the capacity of living organisms and their social-ecological systems to respond accordingly to both external and internal changes (Folke and others 2010: 20). Adaptability not only extends the possibilities of an organism's survival in a given environment; it can also expand the range of environments that its lineage can inhabit, facilitating further adaptability for the species as a whole (Potts 2002: 38).

Combining the concepts of homeostasis and adaptability with the Stieglerian understanding of technical evolution introduced in Chapter 1, we can hypothesize that the transhistorical co-existence between human beings and psychoactive substances is an example of the multiple ways technical artefacts expand our horizon of possibility by increasing our margin of tolerance for the perturbations of the environments we live in and facilitating the maintenance of our homeostasis. Despite the general agreement regarding the diachronic relationship between drugs and humanity, an attempt to understand this example of symbiosis as essential for the survival of the species and the advent of human civilization is still nascent. Edward Slingerland's book titled *Drunk: How We Sipped, Danced, and Stumbled our Way to Civilization* (2021) is a recent attempt to explore the evolutionary and cultural aspects of intoxication, which avoids the usual perspective that intoxication is necessarily a harmful and dangerous pursuit, claiming that 'there are very good evolutionary reasons why we get drunk' (Slingerland 2021: 11).

Drawing on the work of Bernard Stiegler, the notion of psychotropy developed by Daniel Lord Smail, and recent ideas from the fields of neuroscience and evolutionary biology, this chapter seeks to provide an overview of substance use and abuse throughout the long history of humanity's relationship with technical objects. In light of the inadequacies of both the biomedically reductionist and the more sociologically informed models of addiction, an understanding of the phenomenon that takes into account environmental factors in its onset and course, without neglecting the input of neuroscientific research, is long overdue. At the same time, one can adhere to principles of scientific and philosophical argumentation about addiction without adopting the still dominant BDMA, promoted by powerful organisations like the US National Institute of Drug Abuse and World Health Organisation.

Nevertheless, providing an ecological understanding of substance use and addiction is not just the disease model combined with considerations about the impact of inequality, social environment and institutional racism in the development and experience of those processes. In contrast, an ecological account of what is here termed psychotropic prostheticisation intends to incorporate approaches from the humanities and life sciences equally, in order to provide elements

of a truly interdisciplinary framework of why and how addiction happens and eventually how it can be prevented. The main argument of this chapter is that psychotropic prostheticisation constitutes a fundamental mechanism of survival in the history of our species. In the next chapter I will consider the process in which psychotropic prostheticisation is transformed into addiction.

4.2. A portrait of the human as a drug user: Psychotropy as prosthesis

The influential physician Sir William Osler, one of the founders of the prestigious US-based Johns Hopkins Hospital, has been widely quoted as having made the following remark: 'The desire to take medicine is perhaps the greatest feature which distinguishes man from animals' (Cushing 1940).[24] The idea behind this statement is that *Homo sapiens* alone attempts to improve their health through the consumption of chemical compounds. However self-evident as it may seem, this assumption contradicts the conclusions of ethological investigations. On the contrary, comparative psychology suggests that behaviours of self-medication are prevalent across the animal kingdom, with a prominent example being the ingestion of the rough leaves of *Vernonia amygdalina* by chimpanzees in order to overcome parasitic infections (Krief 2011: 160). Until recently it seemed that similar behaviours could be detected only in animals with higher levels of cognitive abilities, mainly primates. Nevertheless, there is evidence that insects such as woolly bear caterpillars ingest a certain kind of plant toxins called pyrrolizidine alkaloids for the same purpose of battling infections by parasites (Singer and others 2009: e4796). One of the terms used to conceptualise these self-medicating behaviours is zoopharmacognosy (Rodriguez & Wrangham 1993: 90), which refers to the selection and use of plants for the prevention and treatment of disease in the animal kingdom.

The phenomenon of zoopharmacognosy presents an interesting case of the sometimes-blurry boundaries between self-medication and self-intoxication. Animals (including humans) consuming plant-derived toxins for therapeutic purposes is a behaviour that has an obvious ontogenetic and phylogenetic significance. However, the extent to which non-human animals consume intoxicants with no apparent nutritional and/or medicinal properties other than to stimulate their nervous system, seems to reject the widely held view that psychotropic intoxication as a deliberate behaviour exists only in human civilization (Samorini 2002). According to the psychopharmacologist Ronald K. Siegel 'almost every species of animal has engaged in the natural pursuit of intoxicants' (Siegel 2005: vii). In his book *Intoxication: The Universal Drive for Mind-Altering*

[24] The quote continues as follows: 'Why this appetite should have developed, how it could have grown to its present dimensions, what it will ultimately reach, are interesting problems in psychology'.

Substances[25](2005), Siegel accumulated various examples of self-intoxicating animals in all possible conditions (wild, domesticated and in captivity). Bees have been observed ingesting the *datura* flower (Siegel 2005: 23); birds are often captured using traps baited with alcohol (Siegel 2005: 105); cats seem to enjoy sniffing catnip *(Nepeta cataria),* a herb with a strong mint odour (Bol and others 2017: 2; Siegel 2005; 61); cows occasionally ingest marijuana flowers (Driemeier 1997: 351; Siegel 2005: 156); tigers, monkeys, elephants and bats actively seek the intoxication produced by the consumption of the Durian fruit in India (Siegel 2005: 116–117). In a tragic incident that happened in 1985, cited by both Siegel (2005: 104) and Samorini (2002), a herd of 150 alcohol-intoxicated elephants in West Bengal caused the death of five people by rampaging through villages. A similar more recent incident in east India is reported by the *Guardian* in 2010 where 60 elephants consumed huge amounts of alcohol produced for a local festival, leading to the death of three people (Burke 2010).

Having established that intoxication is ever-present in the interactions of the animal kingdom with plant-based toxins, Siegel (2005) also discusses the cases of addicted animals that he had encountered in his decades-long research. A particularly interesting example is the way yellow ants (*Lasius flavus*) become addicted to the abdominal secretions of the *Lomechusa* beetle which seem to be intoxicating. The symbiotic relationships of ants and certain species of beetles is well-documented in scientific literature (Alpert 1994: 1; Puker and others 2015: 21). Ants allow beetles to occupy their nests and consume their resources because the latter produce allomones that the former seem to find attractive. According to Siegel (2005: 72), in dangerous situations the yellow ants will attempt to protect the beetle larvae before they move their own eggs to safety. When symbiosis turns into an addictive relationship, worker ants will lose their interest in anything else apart from the secretions of the beetles. Furthermore, excessive intake of the allomones causes damage to the female ants' reproductive capacities (Siegel 2005: 72). Other examples are horses addicted to nightshade which is potentially lethal (Siegel 2005: 156); bighorn sheep addicted to narcotic lichen to the extent that they destroy their denture in the process of scrapping it off the rocks (Siegel 2005: 50); horses addicted to locoweed which in extreme cases can lead to death due to lack of interest in food and water (Siegel 2005: 51); and domesticated reindeer actively seeking *Amanita muscaria*, a hallucinogenic mushroom (Siegel 2005: 65). Moreover, the numerous animal models for the study of opioid, alcohol, and nicotine addiction (Kuhn and others 2019: 2), as well as the documented instances of addiction in captivated animals (Gerald & Higley 2002: 416), present a compelling case against the idea that *Homo sapiens* is the only species who pursues the administration of powerful intoxicants and falls prey to addiction.

[25] Originally published in 1989 as *Intoxication: Life in the Pursuit of Artificial Paradise*.

There is a general agreement that consumption of psychoactive substances (from psychedelic mushrooms to crack cocaine) is a practice that has accompanied humanity in every place on Earth for all-known history. From the religious practices of the prehistoric age to the intoxicated symposia of Ancient Greeks, and from the opium-smoking in the Chinese empire of the nineteenth century to the use of Fentanyl in the crisis-ridden de-industrialized cities of the USA. There is evidence that this relationship started even before the development of agriculture. Cannabis's psychoactive properties, for example, were evident to early humans living in ancient Central Asia (Clarke & Merlin 2013: 1). Paleontological evidence demonstrates the use of opium poppy seeds saved in small grass woven baskets for more than 4000, which have been discovered in Europe (Merlin 2003: 298). This chronology seems rather recent considering that a burial cave estimated around 60000 BC was found to contain medicinal plants, with one of them possibly functioning as a stimulant (Guerra-Doce 2015: 97).

Regarding the purposes of this early drug use, the main hypothesis remains that it was not very different from what is the case nowadays, meaning that psychoactive substances were used for: a) their medicinal, healing value (Guerra-Doce 2015: 98), b) their potential for increasing stamina and countering fatigue (Wadley 2016: 142), and the c) the production of altered states of consciousness (Wilkeman 2010: 27). It is suggested, for instance, that Stone Age art was accompanied by the use of hallucinogens and opium (Hajar 2016: 42). Crocq (2007: 355) has claimed that our predecessors were particularly interested in identifying the most potent psychoactive compounds of various plants and in perfecting routes of drug administration. Substances that induced experiences of dissociation were instrumental in the development of shamanism, creating one of the most ancient hierarchical structures in the history of humanity. The shaman was not only the one who exercised authority by drug-induced visions and supposed communication with spiritual forces, but was also responsible for the distribution and administration of religious experiences (and of psychoactive substances). In his study of *entheogens*, defined as substances that produce experiences of the divine (Winkelman 2010: 5), Dannaway (2010: 486) mentions a passage from the Bible (Exodus 30: 9) where an injunction is given: 'You shall not offer strange incense on it, or a burnt offering, or a grain offering; nor shall you pour a drink offering on it' (Exodus 30: 9). The hierophant did not only oversee the religious experience, but also apprised of the toxic properties of the entheogen and reinforced the strict taboos governing access, synthesis and time of use of the substance. It could be said that the line that begins with the shaman goes through the priest and ends with the modern-day physician is in parallel with the line that connects ancient hallucinogens with modern legal and illegal psychotropic substances.

The extensive prevalence of intoxication-related behaviours in the animal kingdom leads Siegel to consider the behaviour of intoxication as a 'basic drive' (Siegel 2005: x) similar to the drives of hunger, thirst and sex. Indeed, he claims that the pursuit of intoxication should be counted as the 'fourth drive' associated with attempts of organisms to change the way they feel, behave, and experience the world (Siegel 2005: vii, xi, 10). Evolutionary processes have led to the existence of chemical substances as a defensive mechanism of plants against herbivores. However, through experimentation and cultural transmission, humans have developed strategies to facilitate the desired effects of these chemical substances and (not always successfully) ignore, avoid or minimize the toxic ones (Siegel 2005: 14). The important question that arises from Siegel's argument is whether the relationship between the pursuit of intoxication and the drives of hunger, thirst and sex could be characterized as a homology or an analogy. Does the pursuit of intoxication represent an innate drive with which everyone is born, making it homologous with other drives? Or, rather, is it an acquired behaviour that often has the force of the three other drives, constituting an analogy with innate drives rather than a homology? Siegel's response to this question is that the motivation to use substances to achieve certain effects such as pleasure, pain relief, ecstasy, and others 'is not innate but acquired' (Siegel 2005: 208). While hunger, thirst and sex refer to primary biological needs associated with the survival of the individual and the species, intoxication, according to Siegel, is not a drive people are 'born with' but also not unnatural. As he puts it: 'The pursuit of intoxication is no more abnormal than the pursuit of love, social attachments, thrills, power, or any number of other acquired motives' (Siegel 2005: 208). However, he then qualifies this statement indicating that intoxication 'functions with the strength of a primary drive' (Siegel 2005: 208). Thus, we can conclude that in Siegel's thesis, the pursuit of intoxication is something that organisms acquire through observation of other species, intergenerational learning, and individual experimentation but it can also become as strong as a behaviour motivated by the innate drives of hunger, thirst, and sex. Hence, his classification of intoxication as the 'fourth drive'.

A theoretical framework that could enlighten further the ethological and historical investigations regarding the use of psychotropic substances by different species and in different cultures is the work of evolutionary biologist Lynn Margulis (1998: 8). Margulis explored from a microbiological point of view the usefulness of the theory of symbiosis for understanding evolutionary processes. The term 'symbiosis' was firstly introduced by Anton deBary, a German botanist active in the 1870s, with the aim to describe a long-term relationship between two different biological organisms (Margulis 1998: 43). Following deBary, the Russian biologist Konstantin Mereschkowski (1855–1921) coined the term 'symbiogenesis' to conceptualise a theory that attempted to explain the origins of complex organisms from the symbiotic combination or

association of two or more less complex organisms (O'Malley 2015: 10270). Following and aided by the technoscientific advances of the first half the 20th century, Margulis provided a voluminous body of evidence that the evolution of complex cells with nuclei (eukaryotic cells) can be attributed to symbiotic relationships that a primitive host cell maintained with mitochondria and chloroplasts. She proposed that these organelles were originally independent bacteria before becoming incorporated into the cell (Margulis 1998: 8; Sapp 2003: 235). According to Sapp (2003: 240), a well-known historian of biological thought, the term 'symbiosis' is sometimes used to imply two or more different organisms living in cooperation towards a mutually beneficial outcome, while it can also refer to the relationship between a parasite and a host.

Margulis's theory provides an important additional explanation of evolutionary processes which goes beyond the neo-Darwinian understanding of evolution as based on incorporating random mutations gradually leading to the emergence of new species. At the same time, it challenges a view of evolution as the outcome of competition and struggle between species, emphasising the value of cooperation and co-existence between different organisms. The theory of symbiosis is associated with the Gaia hypothesis (Sapp 2003: 262), introduced by James Lovelock and Margulis herself, that proposed a view of life on planet Earth (biosphere) as a single, self-regulating super-organism composed of reciprocal relationships between different species, materials and chemical molecules.

The examples given by Siegel and other researchers detailing the human use of mind-altering chemicals found in plants or fungi could be described as cases of a symbiotic relationship. Archaeologist Marijke van der Veen (2014: 800) has theorised the interactions between humans and plants as 'entanglements' that produce specific materialities existing only in the context of specific relationships. Although the intoxicating properties of certain plant-based substances might have been developed in the process of protecting the plant against herbivores, metabolic and neurological adaptations make these substances eventually desirable. In this sense, the animal and the plant enter a symbiotic relationship where the animal benefits from the short-term effect of the intoxicating molecule and the plant from the support that the animal offers in reproducing the former's genetic material. As suggested by van der Veen (2014: 808), plants that are beneficial to humans end up spreading at a higher rate all over the globe in comparison to their wild predecessors. At the same time, this relationship does not just affect the symbionts (the two or more organisms involved in a symbiotic relationship) but larger geological processes described in the Gaia hypothesis. See, for example, the environmental effects of industrial agriculture (Gowdy 2020: 2).

However, research projects of this scale are not without their critics. In a scathing review published in *The Journal of Psychoactive Drugs*, Siegel's book is attacked for a series of problems including 'omissions', 'questionable assumptions' 'cultural biases', 'self-aggrandizement' and 'distortions' (Leverant 1990: 106). More specifically, the reviewer challenges Siegel's underlying premise that the subjective experience of intoxication in humans is identical to the experiences of animals and he accuses the author for solely focusing on his own research. However, despite its limitations of method and theorization, it provides a fascinating account of intoxication as found in the animal kingdom. Recognizing its universality is indispensable in approaching the phenomenon of substance use and misuse from an ecological perspective. Yet, it is also important to attempt to circumvent Siegel's problematic conceptualisation of intoxication as the 'fourth drive', which appears to be a rhetorical device indicating the wide prevalence and cultural valence of substance use rather than a theoretical argument based on an overarching framework. I claim that Siegel's limited scope could be improved by adopting a neurobiological reading of homeostasis.

4.3. Physiological and affective homeostasis

The general background for the development of the idea of homeostasis was established in the work of Claude Bernard, a French physiologist of the 19th century (Conti 2001: 706). Bernard emphasised that an organism's survival depends largely on its interaction with its external environment. This was far from an original idea as traces of it can be found in Hippocrates and elsewhere (Guidolin and others 2019: 10). However, Bernard adopted a scientific approach by conducting extensive experiments on animals (dogs, rabbits, etc.). Studying such diverse phenomena as the function of the liver (Bernard 1878: 162) and the circulation of blood, Bernard focused on the physiological principles that regulate the interaction of bodily tissues with the surrounding fluids (Holmes 1986: 5), taking place in the organism's internal 'environment' or, in his terms, *'milieu intérieur'*. Therefore, the study of an organism involves two separate, yet interconnected environments: the environment as the outside world and the organism's internal environment (Conti 2001: 706). A significant distinction in Bernard's physiology referred to the different life-forms that exist in the world which can be categorised in three groups: a) latent life (plants and seeds), b) oscillating life (invertebrates, hibernates and coldblooded vertebrates), and c) constant life (superior mammals) (Bernard 1878: 67–8). Organisms that belong to the third group exhibit the highest level of autonomy from the outside world (Arminjon and others 2010: 273). The concept of autonomy here is translated as the capacity of the organisms to maintain the

milieu intérieur in conditions that allow the cells and the organs to function optimally. In other words, the internal environment needs to remain constant despite the changes imposed on the organism by the external environment. As Bernard put it:

> The constancy of the *milieu intérieur* is the condition of free, independent life: the mechanism that makes it possible is in fact the same that ensures the maintenance in the internal environment of all the conditions required for the life of the elements (Bernard 1878: 113).[26]

According to Bernard, the higher organisms are 'in a tight and informed relationship' with the external world (Bernard 1885: 114; cited in Holmes 1986: 23) and, in order to survive, they need to compensate and equilibrate the function of the *milieu intérieur* following 'external variations'.

Following Bernard's work, the American physiologist Walter Cannon attempted to understand not only the importance of the stability of the *milieu intérieur* for the survival of the organism, but also the dynamic character of this multifaceted process of physiological regulation. He coined the term homeostasis with the aim of describing the mechanisms through which the internal conditions of a body remain steady despite the perturbations of the environment (Cannon 1929: 400). As he claims in his landmark paper titled 'Organisation for physiological homeostasis' (Cannon 1929: 401), the prefix *homeo-* (derived from the Greek *homoio*) was more appropriate than the prefix *homo-* because the former indicates similarity while the latter implies sameness. The suffix *stasis* was chosen firstly because one of its multiple meanings is 'condition', and secondly because of its association with statics, a concept of mechanics used to indicate the action of forces in tension (Cannon 1929: 401). A common analogy used to explain homeostasis is the function of the thermostat (Damasio 2018). A thermostat monitors through sensors the temperature of a specific environment and according to previously set values either initiates an action (cooling or heating) or suspends the one that is already taking place. Most importantly, as is the case with the thermostat, the processes of homeostasis are automatic and do not require conscious involvement. Cannon's real advancement regarding homeostasis, however, was the recognition that physiological regulation refers not to set values but to ranges of values (even when these are narrow), presenting a more dynamic understanding than the one promoted by Claude Bernard

[26] 'La fixité du milieu intérieur est la condition de la vie libre, indépendante: le mécanisme qui la permet est celui qui assure dans le milieu inférieur le maintien de toutes les conditions nécessaires à la vie des éléments' (Bernard 1878: 113).

approximately fifty years before Cannon. Therefore, the constancy of the *milieu intérieur* refers to a more relative state of equilibrium instead of one defined in absolute terms (Cooper 2008: 424).

Interestingly, in his book that was intended to popularize the concept of homeostasis, *The Wisdom of the Body* (1932), Cannon indicated that one could speak of social homeostasis, and he referred to 'analogies between the body physiologic and the body politic' (Cannon 1932: 287). Correspondingly, he claimed that similarly to a failure of biological homeostasis 'lack of stability in the social organism' leads to the 'sufferings of human creatures' (p. 302). Recalling Bernard's association of higher levels of capacity to maintain a constant internal milieu with greater freedom, Cannon (1932: 306) suggested:

> Just as social stabilization would foster the stability, both physical and mental, of the members of the social organism, so likewise it would foster their higher freedom, giving them serenity and leisure . . . for the discovery of a satisfactory and invigorating social milieu, and for the discipline and enjoyment of individual aptitudes.

Cannon's insight regarding the potential applicability of the concept of homeostasis to supra-individual organisms and processes of non-automatic physiological regulation had not inspired any further elaboration until recently with the work of neuroscientist Antonio Damasio. Although the concept of homeostasis has been applied extensively to the study of neural mechanisms involved in phenomena of mental life (see, e.g. Huang and others 2011: 16; Koob & Le Moal 1997: 55; Pendyam and others 2012: 620; Wyatt 2016: 511), these attempts have focused mainly on automatic processes on the synaptic and peri-synaptic level. Damasio (2018) instead approaches homeostasis as a comprehensive explanatory framework that refers to life as a whole and can be considered as a general principle of regulatory mechanisms that exist from the level of the cell to the level of entire social groups. A central idea underlying his theory is that homeostasis should not be understood only as an attempt to achieve or restore a certain level of stability, but it also refers to the ability of the organism to flourish in the future (Damasio 2018). In other words, homeostasis is an integral process not only for withstanding environmental perturbations but promoting the wellbeing of the organism and its viability for future challenges. From this perspective, one can see that organisms with more advanced nervous systems form 'supplementary regulatory mechanisms aimed at achieving balanced and thus survivable life states' (Damasio & Damasio 2016: 125) which, although they are not automatic, function following the same homeostatic principles.

Homeostatic feelings (like thirst, hunger, desire, pleasure, well-being, and pain) as mental experiences of bodily states (Damasio & Carvalho 2013: 143) play a fundamental role in these processes because they provide indications regarding the progress or not of homeostatic regulation. A good example to understand this mechanism is the feeling of hunger. Hunger is experienced when the organism's levels of satiety, which are monitored continuously by the nervous system, deviate from the acceptable range producing physiological responses and prompting the organism to search for food (Damasio & Carvalho 2013: 144). When satiation is achieved, the feeling of hunger withdraws, and the measures adopted by the organism to satisfy the hunger are suspended. Feelings, as Damasio puts it, 'intervene in the solution of essential problems of life regulation', and they achieve that by acting as 'interfaces' (Damasio & Damasio 2016: 126), connecting physiological operations with the mental experience of bodily states. In addition, given that feelings are also characterized by different levels of intensity (weak or strong) and valence (positive or negative), they have the ability to offer indications of whether the physiological state of the organism leads 'to continued health or even flourishing (well-being is an example), or if that state requires a correction' (Damasio & Damasio 2016: 126), as in the case of hunger. Another example that has been investigated from a neurobiological point of view is the feeling of pain (Craig 2003: 303). Feelings offer organisms the capacity to monitor and correct physiological regulation. However, non-automatic homeostatic mechanisms, precisely because they are permeated by the agency of the individual organism, are notably vulnerable to error, leading to decisions and choices that might be incompatible with the main homeostatic objectives (Damasio & Damasio 2016: 127). Indeed, it has been suggested that impaired decision-making processes in psychiatric disorders (imprecise assessment of preferences, substandard execution of actions, and distorted evaluation of outcomes) can be theorized as dysfunctional attempts to restore homeostasis (Paulus 2007: 603). An extended definition of homeostasis, then, describes it as a regulatory process involving physiological, cognitive, and affective elements with the aim of dynamic stability against 'internal and external perturbations' (Paulus 2007: 602). It is worth noting that these reflections on homeostatic processes should not be considered from an a-historical point of view. Embodied experiences like those of hunger and pain and the feelings associated with them are subject to historical and cultural transformation. It is highly unlikely that similar stimuli are interpreted the same way by individuals across different historical periods, genders or ethnic groups (Bourke 2014: 305; Kwok & Bhuvanakrishna 2014: 197; Zeberg and others 2020: 3468).

An important hypothesis proposed by Damasio refers to the role that feelings might have played in prompting the human species to use technological solutions for problems of physiological regulation that the available automatic homeostatic mechanisms could not address

(Damasio & Damasio 2016: 128). Feelings, more specifically, facilitated the identification of a need which was subsequently partially or fully by covered a process of invention. As one can imagine, the technological and social solutions to problems of homeostatic regulation live a life of their own and advance to levels of complexity higher than the ones required for the initial purpose. This conceptualisation leads Damasio to suggest that alongside the process of biological homeostasis there is a process of 'sociocultural homeostasis' (Damasio & Damasio 2016: 128) that began at a certain point in evolution and is still ongoing.

Expanding the concept of homeostasis and recognising the significant function of feelings is a significant step towards integrating the knowledge of biochemical processes with that of mental representations of internal bodily states. It also allows us to understand that feelings are subject to physiological regulatory processes and thus can be manipulated by stimuli that seem to restore homeostasis while in the long-term undermining it, which is something that Damasio fails to examine in its full extent. As Panksepp and others (2002: 460) indicate, psychotropic substances have the capacity to induce pleasurable feelings to organisms; a function that motivates them to persist in their consumption and ignore activities that are associated with their long-term fitness such as nutrition and copulation. Prolonged use of these psychotropic substances makes the process of 'affective homeostasis' (Panksepp and others 2002: 460) extensively dependent on them, a neuropsychological state that is described by Panskepp and others (2002: 460) as 'addiction'.

Nevertheless, perceiving the use of psychotropic substances only as a dysfunctional attempt to restore homeostasis offers a limited understanding of the complex relationship between these substances and the evolution of humanity, which is heavily influenced by the special characteristics of modern methods of substance use (pure substances and direct routes of administration that produce supraphysiological effects on the human brain). That is crucial in my technological approach to substance use. Even though one could claim that most of these substances are found in some 'natural' form (i.e., in certain plants), their cultivation, consumption and storage are mediated by technical artefacts and refinement techniques that largely determine their effects on the nervous system of the individual user. Routes of administration, for example, affect the severity of dependence in heroin users, as individuals who inject the drug experience more severe dependence than people who smoke it (Gossop and others 1992: 1527). Stiegler (SM2: 120) claims that 'the objects of the world in general are always technical objects even when they are natural: they are only worldly objects to the extent that they are inscribed in a circuit within a technical system which functionally integrates them.' From this point of view, psychoactive substances are technical objects, even before the stage of processing that makes them available for

human consumption, as in the greatest number of cases they are cultivated following specific agricultural methods and they become refunctionalised by the existing social organisation as instruments of intoxication.

There is a significant amount of evidence that human evolution has been greatly shaped by the consumption of psychotropic chemicals. One particularly interesting formulation claims that psychotropic substances were used by indigenous civilizations as substitutes for the nutrient forms that would facilitate the production of neurotransmitters in the human brain, but which were not readily or abundantly available (Saah 2005: 3; Sullivan & Hagen 2002: 396). Consumption of these substances was associated with effects that were advantageous in terms of fitness, especially given their potential to reduce fatigue. The long evolutionary presence of detoxification enzymes, such as the cytochrome P450 (CYP) haemoproteins in the liver, indicates that our exposure to intoxicants is not only a modern phenomenon (Sullivan and others 2008: 1233).

The impact of psychotropic substances on human evolution seems to be so pervasive that biological anthropologists have suggested that specific neurobiological adaptations in the human brain have been formed to allow the optimal metabolism of psychotropic molecules derived from plants (Sullivan & Hagen 2002: 389). Correspondingly, evolution has transformed the chemical substances produced by plants so that they can act as defenses against herbivore mammals, to which the latter had to further adapt in order to seamlessly reap the benefits of psychotropy.

It is plausible, then, to consider psychotropic substances as homeostatic mechanisms in the broader sense of the term. The hypothesis that these substances functioned as neurotransmitter analogues and therefore constituted something closer to nutrient resources rather than mind-altering molecules, however fascinating, is incomplete. Müller and Schumann (2011: 293) introduce the term 'drug instrumentalization' to refer to the use of substances with the aim of facilitating non-drug-related behaviours and achieving certain goals, such as the modification of existing mental states. Providing a definition of an instrument 'as something that helps to achieve a goal that would not be achievable or which would require a higher workload without the use of the instrument' (Müller & Schumann 2011: 295), the two neuroscientists claim that non-addicted individuals consume psychotropic substances because their effects transform and lead to mental states that are useful for attaining personal objectives. The process is somewhat differentiated for addicted individuals. The framework of drug instrumentalization implies that the use of psychotropic substances might act temporarily as a homeostatic mechanism in cases of psychiatric disorders (Müller & Schumann 2011: 301) either by offering some relief or by improving everyday functionality. On that account they refer to Sullivan's and Hagen's (2002: 395) suggestion that

psychotropic substance use might be related to a deficit in certain neurotransmitters, which can be characterized as a version of the self-medication hypothesis of drug use (Khantzian 1985: 1259).

Approaching the use of psychotropic substances from the perspective of homeostasis one might be able to offer a qualified modification of Siegel's claim that the pursuit of intoxication constitutes the 'fourth drive' (Siegel 2005: 10), which supposedly has the strength of innate drives like thirst, hunger and sex, yet functions as an acquired motivation. Instead, one could perceive the use of psychotropic substances as part of individual mechanisms that function according to what psychotherapist John Montgomery has termed 'homeostatic drive' (Montgomery 2018: 429), a general psychobiological force that leads organisms to use automatic and non-automatic regulatory processes to maintain homeostasis. Despite its highly speculative character, the concept of 'homeostatic drive' allows the integration of Damasio's expanded approach of homeostasis with the extensive research that indicates the use of psychotropic substances as essential components of homeostatic mechanisms.

These reflections and hypotheses regarding the evolutionary history of humanity's relationship with psychotropic substances provide a more sophisticated perspective regarding a behaviour—the consumption of these substances—that is often stigmatized and de-naturalized. Evidence shows that the impact of psychotropic molecules on our evolution is as important as the impact they had on our cultural history. Slingerland (2021: 157) contends that intoxicants 'have played a crucial role in allowing hunting and gathering humans to enter into the hive life of agricultural villages, towns and cities.' Interestingly, using the concept of a 'chemical tool' he proposes that alcohol, with its capacity to facilitate stress-relief, was fundamental in facilitating human co-operation and communal living (2021: 118). Regarding this aspect of intoxicant use, it is important to consider the work of Daniel Lord Smail, who has provided one of the most convincing accounts of this renewed understanding of natural history.

4.4. On neurohistory and psychotropy

Smail's underlying premise is the evolution of the genus *Homo* can be understood only through adopting a deep-historical perspective, one that investigates the Paleolithic, the Neolithic and the Postlithic eras (Smail 2008: 2). Smail suggests that a more accurate narrative of the history of humanity can be constructed based on the interplay between culture and the human brain. His neurohistorical approach could be summarized in the sentence 'culture is made possible by the plasticity of human neurophysiology' (Smail 2008: 154). More specifically, Smail argues that to a certain extent the evolution of humans can be explained in terms of the various ways in which

they attempted to alter their states of mind. The biological substrate for these attempts remains, from the early historical stages of our species until today, the neurochemical substances that exist in the brain; as well as nerve cells' ability to reorganise their synapses, commonly referred to as neuroplasticity. Serotonin, dopamine, epinephrine, norepinephrine, oxytocin, etc. play and have always played a central role in how human beings behave, think, and feel. Understanding the importance of these processes should not be translated as the reduction of every mental or behavioural process to a sum of interacting neurochemicals. Smail (2008: 113) makes it rather clear that, even though many of these chemicals are shared by other animals, 'in a sense, each of them has its own natural history' and its function remains an outcome of the complex interaction of neurophysiology and historical processes. Here, I would also add that technologies of production and processing of psychoactive substances are of equal importance, considering the increases in potency and availability caused by the advancements in distillation and manufacture of those chemicals. Smail is not ignorant of the fact that the tendency to alter states of consciousness is present in other animals. He mentions the simple example of the startling reflex of horses when they experience a state that could be analogous to 'boredom' and the grooming behaviours of primates, which are instances of a goal-directed behaviour, with the goal being the change of a mental state (Smail 2008: 127).

These ethological observations allow us to understand that, although the ingestion of psychoactive substances is the most direct way of changing human behaviour and cognition, any activity with the ability to have a similar effect can be defined as psychotropic. According to Smail (2012: 43): 'a psychotropic mechanism, if we can use a broad and capacious definition, is anything that is capable of altering perceptions, emotions, moods and behaviour'. The etymological roots of the term 'psychotropic' can be identified in the two Greek words ψυχή (*psyche*=soul) and τρόπος (*tropos*=form, way). While the first word seems obvious in its relationship with drug use and addiction, the word tropos requires particular attention. In ancient Greek the verb *τρέπω* (trepo) had two meanings: it referred both to the action of turning (changing the course) and to the action of transformation, to give a particular form (LSJ). In this way, psychotropic mechanisms should be viewed as attempts to change bodily and noetic activity as well as giving form to this activity. That is particularly interesting in reference to the process of addiction as it will be shown in the next section.

The question of who is affected by which psychotropic mechanisms serves as Smail's criterion to distinguish two types of psychotropy, referring either to activities that attempt to alter the mood and behaviour of other individuals or activities that alter the individual's own behaviour and mood (Smail 2008: 164). The first group of psychotropic mechanisms are termed as teletropic

(from the ancient Greek adverb *τῆλε* [tele=from a distance]). A prime example of teletropic behaviour is religious practice in the form of the ritual and the sermon which attempt to change the conduct of the believers by using their faculties of listening, understanding, and translating thoughts and feelings into actions. Ferguson and others (2018: 113) have hypothesized that there is a relationship between the activation of both brain's frontal attentional regions and the nucleus accumbens with the amplification of euphoria and increased attention when a person undergoes a religious experience—a hypothesis that is in agreement with the established perspective that altered states of consciousness are accompanied by the elevation of dopamine levels (Previc 2011: 49). Even a verbal comment in an everyday interaction can be subsumed into this category of psychotropy. Here, we can recall the well-known quote usually attributed to Freud—although Freud himself had mentioned that he borrowed it from an English writer—that 'the first human who hurled an insult instead of a stone was the founder of civilization.'

The second group of psychotropic mechanisms are those that target the individual's own state of mind described by Smail with the term 'autotropic'. 'Autotropic' mechanisms can be divided into those that refer to ingestion of psychoactive substances and to those that indirectly change the brain's neurochemistry by producing non-pharmacologically induced mood alterations (Smail 2008: 171). A well-known example of the second, non-substance-induced type of psychotropy is the effect that running has on long-distance runners, as it has been observed that running is followed by a secretion of endorphins that induce a feeling of pleasure to the individual (Boecker and others 2008: 2525). Different but in no way less acute effects are caused by activities such as listening to music (Salimpoor and others 2011: 259), gambling (Joutsa and others 2012: 1993), watching pornography (de Alarcón and others 2019: 11), and so on.

Smail's distinction between teletropic and autotropic psychotropy is useful, but the criteria of demarcation are not always that clear. Such a distinction should also consider the dimension of temporality. Teletropic mechanisms can act on a long-term basis and their effect need not be immediate. For example, a religious sermon might produce a difference in mental state when delivered but it can also continue to affect the individual who heard it for a long time after taking place. Teletropic mechanisms are, to a certain extent, always autotropic since they presume a neuropsychological apparatus that experiences in different ways, times, and intensities the same activity. Temporality is also crucial in the process of autotropic mechanisms. One wonders whether the major psychotropic effect of a substance is its actual consumption or the anticipation of its use.

Another interesting aspect of Smail's work is the one concerning the impact that living in large groups had on human species' brain and the interaction of this form of existence with

psychotropic mechanisms. The argument is based on the social intelligence hypothesis. According to Buller (2006: 99–100) the main idea behind this hypothesis is that a major force of human evolution was not our species' interaction with the physical environment but the fact that human beings lived from early on in a socially organised way. A large part of human behavioural adaptability was determined by participating in competitive relationships with other human beings for nutritional and sexual resources, as well as understanding the honest or hostile intentions of the other where a symbiotic relationship had been formed. Thus, the suggestion claims that it was far more important for members of the human species to be able to withstand the pressures of living with other members of the same species rather than being able to defend against wild animals or adverse weather. As put by Smail (2008: 117): 'the large human brain evolved over the past 1.7 million years to allow individuals to negotiate the escalating complexities posed by human social living.' This hypothesis can be reinforced by the claim put forward by Terrence Deacon (1997: 387) that there is a co-evolution of the human brain and the ability to use symbols (i.e., language). Moreover, research from the field of comparative ethology (Hermann and others 2007: 1365) shows evidential support for the same hypothesis (although the term 'cultural intelligence hypothesis' is used instead of 'social intelligence'), as by comparing primates with young children, it proves that the human species has acquired special skills of social cognition related with brain size through evolution.

Psychotropic mechanisms constitute an important aspect of this dimension of human evolution. Phenomena integral to social existence, from shamanism and religion to psychotechnologies of power like the 'bread and circuses' of the Roman Empire and advertising in the era of consumer capitalism, can be subsumed under the concept of psychotropy. Understandably, one could object that this definition is overly broad. However, even ingestion of psychoactive substances is inseparable from cultural life. It seems impossible to imagine the ancient Greek pedagogic culture of symposia without considering wine as constitutive factor in the learning process or the Eleusinian mysteries without the hallucinogenic properties of the fungus ergot (Rinella 2011: 135), just as it is unthinkable to examine modern education without taking into account the function of the book, and typography in general.

In this sense, it can be argued that a large part of the history of human species can be viewed from the perspective of the various psychotropic (physical or behavioural) technologies that facilitated social organisation. Thus, psychotropy emerges as an evolutionary force that deserves to be investigated in its own right. However, the dangers of neurological determinism and adaptationism lurk when human evolution is reduced to the interaction and adaptability of human brains without understanding the cultural, historical and technological forces that shaped

these brains. Psychotropic mechanisms can have adaptive capability (although it can also be otherwise) but brains interact also with the outcomes of their own adaptive responses. As Catherine Malabou (2017: 46) has claimed: 'Adaptation […] is two- sided. It is of course adaptation to the external world, but it is also adaptation of the brain to its own modifications.' So, psychotropy can be understood not as a means but co-constitutive of the human species. The intellectual framework proposed by the French philosopher of technology Bernard Stiegler and recent advances in the biology of neuroplasticity can be fruitful for a development of this line of argumentation.

4.5. On psychotropic prostheticity

While Damasio seems to recognise the important role of technology in homeostatic processes, he preserves a rather sharp distinction between a hypostasized 'nature' and 'cultural' processes. However, cultural and sociotechnical systems do not simply complement biological activities but they can replace them, develop them towards a certain direction or even disrupt them. His framework seems to be oblivious to the ways 'natural' mechanisms—if they even exist as such in the first place—are transformed by technological and cultural processes. On that note it is worth revisiting Stiegler's approach to the relationship between biological and technical evolution.

Stiegler argues that philosophy has repressed and then forgotten technics, understood here as the exteriorization of memory in inorganic matter, concluding that: "Technics is the unthought" (TT1: ix). Drawing from the work of Bertrand Gille, Andre Leroi-Gourhan, and Gilbert Simondon, Stiegler proposes a new theory of technical evolution. One version of the Darwinian theory of evolution holds that the human species evolves genetically by developing traits that function as adaptations to environmental pressures. Although heavily criticized (see for example Koonin 2016: 116) as pan-adaptationist, reducing all evolutionary processes of human and other animal attributes to the question 'what is it for?', this perspective remains popular in both academic and lay communities. Stiegler's criticism of this view is not about its truth so much as its incompleteness (Moore 2013: 18). For him, in order to study biological evolution, it was necessary to recognize the importance of technical evolution (TT1). Technics is not just vital for our existence as human beings. It is what makes us human. Thus, to the processes of phylogenesis and ontogenesis Stiegler adds the process of 'epiphylogenesis' which refers to the interaction and co-constitution of the human and the technical as evolutionary forces. In this sense, the species homo sapiens is the outcome of a long evolutionary process that involves the supplementation of a pre-technical animal by technics. As Stiegler puts it: 'Humans are prosthetic beings, without qualities'

(TT2: 2). However, this prostheticity of the human should not be conceived as an instrumental use of an external object to an already complete being. Instead, "the prosthesis is not a mere extension of the human body; it is the constitution of this body qua 'human'" (TT1: 152-3). As in Derrida's *Of Grammatology* (OF: 144), the supplement—in our case technics—is seen as an addition, but ultimately constitutes the very thing it supposedly only adds.

How are humans constituted by technics? Stiegler attempts to understand this relationship through the concept of memory. For him, technics is a 'process of exteriorization' (TT1: 17) of the human noetic activity. Written language is a perfect example to understand this approach of technics. Written language is one of the many external forms of memory that were vital for the evolution of the human species. Even before the invention of writing technologies, practices such as wall-painting and carving constituted processes of the mnemotechnical externalization of human experience, leading to the further transformation of what came to be *Homo sapiens*. Technics is not just an aid or support mechanism of the human mind but it is an indispensable part of it. Stiegler claims that: 'Technics does not aid memory: it is memory, originally assisted "retentional finitude"' (TT2: 65). All this milieu of written language, tools, and artefacts composes the mnemotechnical archive that forms the background where the pre-individual is oriented in their spatio-temporal context (Crogan 2013: 105). Through the interaction with their exterior milieu the individual will engage in an endless process of individuation that will stop only with their death (Lewis 2013: 59).

The ability to externalise is significant from an evolutionary point of view. In contrast to other animals, the human species has the advantage of transmitting the experiences of every individual to the following generations regardless whether they are genetically related or not. As Moore (2013: 25) argues: 'Rather than begin from scratch with every generation, we are born into a technical symbolic order whose past we adopt as our own through participation in tradition.' So, what we conceive as the human mind, emotions, desires, behaviours are all born through technical evolution.

Through this prism, Smail's hypothesis about psychotropy as an evolutionary force and Stiegler's argument regarding the originary prostheticity of the human can lead us to an understanding of psychotropic mechanisms as a form of technics that made human civilization possible. Autotropic and teletropic psychotechnologies were essential for the evolution of the human species. Even the function of language can be conceptualised as a psychotropic mechanism with the aim of producing specific outcomes, as a technique of behaviour modification in the social life of the *Homo sapiens*. Smail (2012: 44) also suggests that psychotropic mechanisms in general are inherently involved in relationships of power since they are oriented around the modification of

other individuals' behaviour. He mentions that power in human societies is deeply related with two important brain systems, one being the stress-response system and the other the reward system (Smail 2012: 44). Power's basic function to force or deter an action can be mediated by psychotropic mechanisms. Smail, in the same text speculates that the idea of 'bottlenecking' could be used as a concept to understand how power functioned in early human societies. Bottlenecking refers to the practice of limiting and putting constraints in the way materials or services of value are distributed leading to the accumulation of power in the hands of the individuals or organisations that control these processes (Earle & Spriggs 2015: 517). Archaeologists have claimed that early structures of power were related with bottlenecking. Addiction specialist Robin Room (2015: 3) mentions how the use of substances in tribal societies was regulated by the shaman or an elite who could constrict access to substances in order to reserve them for themselves or specify their use for special occasions.

Even in modern times, where less speculative accounts can be constructed, psychoactive substances have transformed human societies in similar ways as other technical artefacts seem to do. For example, human society was never the same after the advent of mass sugar, tea, and coffee consumption. As Mintz (1986: 214) puts it: 'the first sweetened cup of hot tea to be drunk by an English worker was a significant historical event, because it prefigured the transformation of an entire society, a total remaking of its economic and social basis'. Of equal historical importance were trade activities centered around spices (Schivelbusch 1992: 6), opium (Trocki 2012: 9) as well as the mass displacement of human populations that worked as slaves in plantations associated with psychotropy. The formation of the capitalist mode of production depended to a large extent on how colonial powers oriented their economic activities around tea, opium, chocolate, coffee, etc. Historian Carl Trocki (2012: 7) opined that 'the British Empire, the opium trade, and the rise of global capitalism all occurred together'. In the museum housing the objects that determined human history, wine and coffee deserve a place next to the wheel and the steam engine.

The history of psychotropic prostheticisation is also tied with the evolution of other forms of technology in a reciprocal relationship. For example, the clipper ship, which for a period became the dominant form of sea transportation, was the solution to the limitations that country ships faced in the trade of large amounts of opium. According to Trocki (2012: 104): 'they were ships completely made for the opium trade.' Technological inventions were also instrumental for the rise and fall of psychotropic mechanisms. An interesting example is the impact that the invention of hypodermic injection had on the proliferation of morphine use from 1860 (Seddon 2009: 59).

Do technical artefacts and psychotropic mechanisms act only as positive force in human evolution towards eternal progress and complexity? Sarah Jain (1999: 49) has criticized the strategy

of understanding human-technology in terms of prosthesis because it cannot account for the fact that technological prostheticisation can have both negative and positive attributes. Indeed her argument is that accounts of prostheticity ignore the 'wounding ingredients of technological production'. This limitation can be overcome, however, by adopting the notion of pharmakon as reformulated by Bernard Stiegler.

A pharmakon is something that can function simultaneously as poison and remedy. The concept was introduced in Derrida's essay under the title 'Plato's Pharmacy', which constituted a close reading of the platonic dialogue *Phaedrus* and referred to the pharmacological nature of writing. Plato, as it is well-known, considered writing as a medium of *hypomnesis*, while the dialogue was a medium of *anamnesis*. The dialectic function of the dialogue was, according to Plato, the only truthful way to knowledge against the sophistry/logography which consisted of writing practices and aimed to construct illusory perceptions and manipulate the reader/listener. Thus, writing could be beneficial as an externalization of memory, and at the same time detrimental as loss of the faculty of memory. Along the same reasoning Stiegler understands technics as a pharmakon that can be both beneficial and detrimental for human existence. In his *What Makes Life Worth Living* (2009) he uses the psychoanalytic theory of D.W. Winnicott to argue that the transitional object of the infant is the first pharmakon and to develop how technics as pharmakon is constitutive of human desire. However, as Winnicott's transitional objects can lead to a state of dependence, the same applies to technical artefacts.[27] Given their mood-altering properties psychotropic mechanisms exhibit the same pharmacological ambivalence. In the next section, I will attempt to show how the transition from psychotropic prostheticisation to psychotropic addiction can be understood.

4.6. Towards an ecological understanding of addiction

Posing the pathology of addiction as an outcome of the 'negotiation' between the individual and the pressures of its milieu makes even more plausible the adoption of an ecological framework of psychotropic prostheticisation. Nevertheless, any account that does not address this 'negotiation' to a certain level of empirical investigation is bound to repeat a speculative project that has been already developed in various directions by most of the great thinkers in human history. In other words, without identifying the plane on which individual and environment meet, interact and become transformed by each other, the ecological understanding stops being relevant. This plane is none other than the brain with its plastic properties.

[27] For more on how Stiegler incorporates Winnicott's ideas, see Chapter 5.

The humanities have tended to exhibit a state of denial regarding the importance of neuroscientific and clinical discourses in the investigation of addiction. An example of this tendency is Davis's (2018: 179) "Foucault and the Queer Pharmatopia" which hastily dismisses neuroscience and addiction discourses as inherently ideological but does not engage in an alternative theorisation of the phenomenon that would integrate biological knowledge. Despite very interesting historical, anthropological and sociological accounts of the causes, characteristics and treatments of addiction, the discussion of neuroscientific research in these projects is limited, if not non-existent. One could reckon that such an attitude is the outcome of an attempt to avoid making the kind of reductionist claims usually seen in the writings of the proponents of the BDMA, where addiction is reduced to brain abnormalities followed by an increased focus on genetic research. Although it may sound like a truism, it is difficult to imagine any behaviour without the existence of even an elementary nervous system. Ignoring the function of the brain in addiction research therefore appears equivalent to attempting a study of literature without the existence of language. Catherine Malabou (2008[2004]: 11) makes a similar claim about continental philosophy's refusal to engage with contemporary neuroscientific research, mentioning that, with the exception of those interested in cognitive sciences, philosophers 'are simply ignorant of the results of recent research on the brain'.

In the opening remarks of the present chapter, it was posed that brain plasticity is a *sine qua non* factor in the interaction between the environment and the individual. Plasticity can then signify the ability of the brain to reorganise its neural processes in order to facilitate changes in behaviour with the aim of responding to environmental stimuli (Milner and others 2005). These changes exert effects on the environment, which is also transformed. For example, a combination of stressful environmental stimuli and circumstances might lead an individual to experiment with psychotropic substances for the purposes of self-medication. The neurophysiological changes created by the extensive use of psychotropic substances facilitate specific behavioural responses leading to further escalation of the state of addiction. In this process the individual might cause further changes to their environment by indulging in risky behaviours, possibly affecting the mental state of their loved ones or, as it sometimes happens, ask for help. Thus, neuroplasticity emerges as a major force of both the adaptation of the individual to their milieu but also the transformation of the milieu by the individual. In the next chapter, I adopt Canguilhem's perspective, to indicate that neuroplasticity mediates the creation of new forms of life but is also susceptible to rigidification of behavioural patterns which the individual finds difficult to change. As far as psychotropic prostheticisation is concerned, we can infer that whether it refers to a state of health or to a pathological state is decided to a large extent by the outcome of a process that

involves environmental conditions and the ability of a certain individual to create new forms of life.

An early evolutionary approach to addiction inspired by Modern Evolutionary Theory has been attempted by Smith (1999). In this attempt Smith (1999: 384) begins by defining the three characteristics of a Darwinian trait (genetic inheritance, variations in expressions, fitness consequences) and carries on showing how empirical evidence proves that substance abuse has a genetic basis, exhibits phenotypic variation and has both positive and negative consequences regarding environmental fitness. Irrespective of epistemological concerns whether biogenetic research on substance abuse is conclusive or not, it seems that the limits of a strictly Darwinian approach to substance use and abuse become apparent in the undecidability of whether these phenomena are of adaptive or maladaptive value. In a sense, environments that are abundant with stressors make substance use a possible adaptive mechanism. The complexity of psychotropic mechanisms does not allow a definite closure regarding their adaptivity. Instead, if they are understood as forms of technics with an ingrained pharmacological character, one can explain more accurately the ambivalence of psychotropy and its heavy reliance on the structure of social organisation and the historical development of the human species.

Indeed, Smith in an article co-written with the neuroanthropologist Daniel Lende (2002) has produced an analysis of addictive behaviour that attempts to include research themes from other disciplines that are relevant for addiction. From this perspective they understand addiction as an evolutionary phenomenon in three dimensions: biological (the function of the dopaminergic system), psychological (by discussing addiction from an attachment perspective) and social (here understood as a field of dominant and dominated groups characterized by relationships of dependence and submission) (Lende & Smith 2002: 453). Starting from Robinson and Berridge's (1993) thesis (which I discussed in Chapter 3) that dopamine is mostly associated with the feeling of wanting (what these researchers term incentive salience) and not directly with the experience of pleasure, Lende and Smith (2002: 451) claim that drug abuse is more related to the associative context of the substance of concern (environments, relationships and feelings experienced during use) rather than the immediate effect of the drug to the dopaminergic system. Thus, they move their focus from an explicit concentration on the dopaminergic system to the latter's relationship with the prefrontal cortex, which is important in both processes of association and impulse inhibition. At the psychological level, the same authors present research results providing proof that attachment style is significant in the development of psychological characteristics relevant to addictive behaviour. More specifically, insecure attachment has been associated with selection of short-term strategies and risk-taking behaviours, since in environments where this type of

attachment is prevalent such attributes have an intrinsic adaptive value given the uncertainty of how resources are to be acquired. Finally, the social dimension of addictive behaviour is operationalised as an outcome of the long evolutionary process of dominance and inequality of resources that is accompanied by the organisation of hierarchy in large social groups. Under this premise, addiction is understood as an adaptive strategy to overcome the stress and discomfort of being subordinate to and dependent on other members of the group. The last idea provides a possible framework for investigating the relevance and explanatory strength of Smail's (2012: 45) idea that psychotropy is associated with bottlenecking, the situation where significant resources and relationships are concentrated to specific individuals and psychotropic mechanisms function as a soothing dynamic vibration absorber.

An important merit of the understanding of addiction proposed by Lende and Smith (2002)—despite its unavoidable highly speculative character—consists in its strongly materialist basis. It is a common point of criticism of evolutionary approaches to social phenomena that, by focusing on structures of biological matter (genes, cells, bodies), they ignore the socio-historical context of the processes they attempt to explain. However, the opposite can also happen. In an attempt to take into account the non-biological factors of a phenomenon, evolutionary perspectives end up being biological in name only.

4.7. Conclusions

Two different prints were created by William Hogarth in 1751. One is titled 'Beer Street', the other 'Gin Lane'. In the first, there is portrayal of harmonious social living while in the second there is collapse, moral degradation and chaos. It can be said that 'Beer Street' shows how psychotropic prostheticisation is to be understood as a positive social force, while 'Gin Lane' shows the detrimental or even horrific effects of an abuse of a psychoactive substance. At a glance, it can be inferred that the differentiating element of the two prints is the substance that is being respectively used or abused. It could even be suggested that there is a nationalist intention to overvalue the English-produced beer to the traditionally foreign spirit of gin (Solmonson 2012: 45), which was itself, ironically, an attempt to wean the country from French brandy, another foreign spirit. However, one of the most interesting aspects of these prints is that they do not only emphasise the different outcomes of two forms of alcohol-drinking, but also the underlying class distinction of alcohol consumption (Muldoon 2005: 161). 'Beer Street' shows healthy and happy craftsmen enjoying moderately, with only the pawnbroker being unhappy and living in a crumbling building (since his business is useless where people are prospering). 'Gin Lane', in contrast, shows the

misery and suffering of the lower classes consuming alcohol in an atmosphere of panic, death and disease. Probably the intention of the creator was to indicate that heavy alcohol-drinking caused this menace (England suffered the infamous 'Gin Craze' around the end of 17th and the first half of the 18th century). However, the portrayal of psychotropy in these prints is not class-neutral. Bernard Mandeville's *The Fable of the Bees, or Private Vices, Publick Benefits* (2011[1732]: 99) articulates in lyrical terms the anxiety produced in the elites from the consumption of liquor by the lower classes:

> Nothing is more destructive, either in regard to the Health or the Vigilance and Industry of the Poor than the infamous Liquor, the name of which, deriv'd from Junipera in Dutch, is now by frequent use and the Laconick Spirit of the Nation, from a Word of middling Length shrunk into a Monosyllable, Intoxicating Gin, that charms the unactive, the desperate and crazy of either Sex, and makes the starving Sot behold his Rags and Nakedness with stupid Indolence, or banter both in senseless Laughter, and more insipid Jests: It is a fiery Lake that sets the Brain in Flame, burns up the Entrails, and scorches every Part within; and at the same time a Lethe of Oblivion, in which the Wretch immers'd drowns his most pinching Cares, and with his Reason all anxious Reflexion on Brats that cry for Food, hard Winters Frosts, and horrid empty Home.

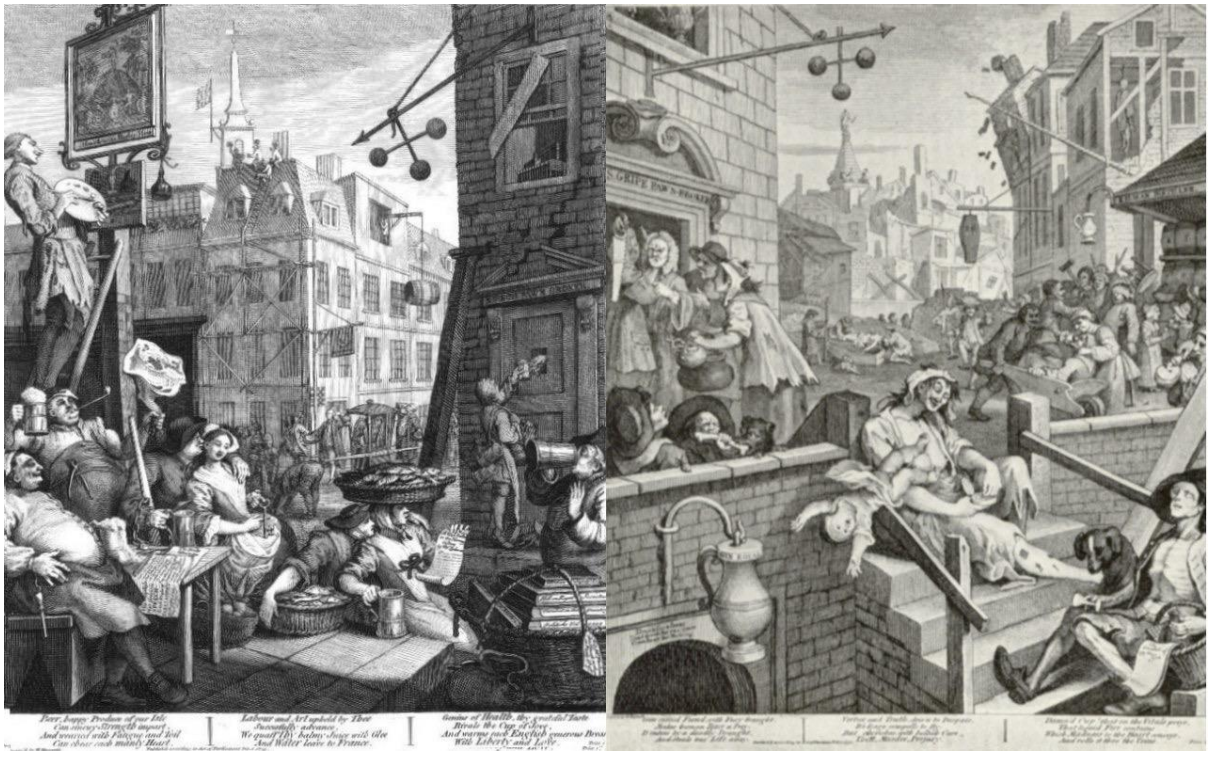

Figure 1. *'Beer Street' and 'Gin Lane' by William Hogarth (1750).* Licensed under Creative Commons. This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights.

However, the distinctive effects of harmful intoxication as opposed to the positive drinking of alcohol are not only portrayed across class lines. The dimension of gender is equally important. According to art historian Julia Skelly (2014: 20) the portrayal of women in *Gin Lane* offers the 'most famous image of an intoxicated woman produced to date'. The consequences of drinking for men are vastly different from those for women. Skelly (2014: 26) analysed the representation of the addicted female, a half-naked mother who cannot even keep her own infant safe, as a threatening figure on three levels. Firstly, the alcoholic woman is harming her own body by exposing herself publicly. Secondly, her own child is falling out of her grasp making her intoxication a crime against a vulnerable infant. Thirdly, she harms the social body in general, as due to her intoxication she is not participating in the labour force, in sharp contrast with the women in *Beer Street*. Skelly draws parallels between the gendered representation of addiction in *Gin Lane*, and the more recent portrayal of mothers addicted to crack cocaine in the media. In both instances, mothers are treated as monstrous individuals, negating 'natural' instincts in the process of seeking pleasure.

These iconic works of art can at first function as two visualisations of the ambivalence or pharmacological nature of psychotropic prostheticisation. Like any other form of technics, psychotropy can be curative but it can also be toxic. Hogarth makes us see that the states of use and abuse of psychoactive substances are not practiced in a social vacuum, instead they are deeply dependent on social organisation, history and economy.

This chapter attempted to propose an ecological framework for understanding the behaviour of substance use and abuse. Beginning with some prehistorical evidence that indicated humanity's eternal involvement in using mood-altering substances, I continued by examining the ideas of Daniel Lord Smail (2008) concerning psychotropy as an evolutionary force where substance use is only one part of the various psychotropic mechanisms. Then Bernard Stiegler's philosophical anthropology of humanity's co-constitutive relationship with technics made possible a discussion of Smail's psychotropy as psychotropic prostheticisation.

Indispensable for an ecological account of psychotropic prostheticisation and its turn into addiction is the consideration of both its evolutionary significance and its biological substrate. In this speculative section of the present text, there was a discussion of possible strategies to address this essential problem. One can be optimistic that future research will provide more sophisticated verification of the presented hypotheses.

Paul Valery once remarked that 'History can justify anything you like. It teaches strictly nothing, for it contains and gives examples of everything' (2005[1931]: 19).[28] This aphorism should be taken seriously not in order to refute historical research but to accept the limitations of a historical account, like the one presented here. Further anthropological, neuroanatomical and historical evidence would be necessary to make the concept of psychotropic prostheticisation a valid hypothesis. The largely historical arguments of Smail and Stiegler reinforce the plausibility of understanding psychotropic prostheticisation as an evolutionary force where psychotropy is perceived as a necessary prosthesis, which, in turn, transforms how psychotropic mechanisms relate to each sociohistorical context. Contemporary neuroscientific research on psychedelics (Ezquerra-Romano and others 2018: 75; Ly and others 2018: 3173), for example, indicates the potential of these substances to enhance synaptogenesis and neuroplasticity, constituting therapeutic alternatives in the treatment of clinical entities such as depression and addiction.

However, the question remains. If we accept Smail's (2008) argument that psychotropy accompanied *Homo sapiens* since time immemorial and my suggestion that psychotropic mechanisms are to a certain extent a form of anthropotechnics, then how can one envision a curative, non-addictive psychotropic prostheticisation without a social organisation that makes toxic, addictive psychotropic prostheticisation irrelevant? In other words, how can society remind us more of a 'Beer Street'—assuming, of course, that 'Beer Street' is closer to a normative state of health—than a 'Gin Lane'?

In the next chapter, I intend to illustrate the transition from use of psychotropic mechanisms to the state of addiction through the critical examination of the concepts of health and illness developed by Georges Canguilhem. Following his concept of 'normativity' I will show that psychotropic prostheticisation in addiction cases renders the individual incapable of creating 'superior' norms in their relationship with their milieu, foreclosing the horizon of possibility. This argument will be supported by a return to Stiegler, and more specifically his symptomatology of contemporary consumerism.

According to Stiegler, the current moment in the history of human civilization, with the unchallenged dominance of the capitalist mode of production, is a period of proliferating addictions (from the opioid epidemic to smartphone use) producing a society that he terms addictogenic (SA: 17). As Moore (2017a: 72) argues, the history of capitalism is inherently connected with the exploitation of the neuroplastic properties of the dopaminergic system, a process he terms dopamining. The latest stage of this relationship is digital capitalism with its

[28] 'L'Histoire justifie ce que l'on veut. Elle n'enseigne rigoureusement rien, car elle contient tout, et donne des exemples de tout' (Valery 2005[1931]: 19).

structural attribute being the manufacturing of addiction, especially (but not only) in digital addiction. The prominent historian of addictions David Courtwright (2005: 121) arrives to a somewhat similar conclusion regarding the relationship of the capitalist economy and dopaminergic system with what he terms 'limbic capitalism'. Courtwright (2005) suggests that there was a transition in the orientation of capitalism from the creation of commodities to facilitate basic survival needs to a situation where more stable profit could be made by the manufacturing and distribution of commodities that were inherently addictive (painkillers, pornographic novels, fatty foods, etc.) and became objects of habitual use. I will explore these ideas in more detail in the next chapter.

Chapter 5: Are contemporary societies addictogenic?

> Contemporary capitalist society as it is currently configured turns many of us into addicts.
>
> —Rik Loose (2015: 166)

5.1. Introduction

One of the most enduring ideas regarding the use of psychotropic substances frames them as so powerful that they are effectively 'seducing' the neurochemical substrates of humans and animals. Even minimal exposure to these substances, the argument goes, can very easily lead to increased salience which, after a certain period of consumption, leads to addiction. An important foundation for this belief was laid by the work of experimenters in the 1950s and 1960s that involved extensive research on rodents self-administering alcohol and drugs (Headlee and others 1955: 230; Nichols and others 1956: 788; Thompson 1968: 199). One after another, experiments showed rodents 'indulging' in self-administration of psychotropic substances, disregarding vital needs and occasionally dying. The results of these investigations indicated that the mammalian brain is intrinsically vulnerable to psychotropic substances, especially opioids, shifting the 'blame' from the individual addict and their supposed 'addictive or antisocial personality' to the substance. If rodents can be, *mutatis mutandis*, as addicted as human beings, then the latter are not to blame for their addiction; it is the substance which is the cause of the havoc in the addict's and their loved ones' lives.

During the 1970s, Bruce K. Alexander, a Canadian psychologist at Simon Fraser University, started to wonder whether the unusual experimental conditions of the examined rats (animals which are naturally prosocial and gregarious were put in cages and deprived of social interaction) might have had an impact on their patterns of self-administration. He considered the possibility that rats were increasingly self-administering morphine in an attempt to overcome the stress provoked by their housing conditions (Alexander and others 1978: 175) a speculation that he shared with the founder of the self-medication hypothesis of addiction, Edward Khantzian (1974: 64) who claimed that it was 'reasonable to infer that the animal prefers opiates because of its ability to relieve stress induced by laboratory conditions and handling.' In order to investigate this hypothesis experimentally, Alexander and a team of researchers designed a series of studies that came to be known as the 'Rat Park' experiments.

They divided the experimental subjects (albino rats) into two groups: one group consisted of rats individually placed in cages with two bottles attached to them (a bottle dispensing water and a bottle dispensing morphine) and the other group (comprising 16-20 rats) in a habitat that was aimed to simulate the most natural conditions. Each group had rats of both sexes. This habitat, which came to be known as the 'Rat Park' was 200 times larger than the standard cage, a 'psychosocial paradise' (Alexander 2008: 15) with empty tins, wood scraps and other playthings as well as a painting of a forest—inspired by the scenery in British Columbia—on the plywood walls. Inside the 'Rat Park' a tunnel large enough to fit only one rat was built. The tunnel led to two dispensers with one of them releasing morphine solution and the other an inert solution. An experimental device made possible the recording of the consumption from each dispenser for each rat.

The first publication reporting the experiments indicates that 'housing conditions appear to play an important role in determining morphine self-administration' (Alexander and others 1978: 178). Rats in isolation were observed drinking more morphine than the rats in the social condition. The researchers suggested that consumption of morphine might have provided some sort of relief for the rats of the first group, while consuming the substance might have put the inhabitants of the 'Rat Park' in a disadvantaged position interfering with processes of mating and fighting in what is described as a 'highly competitive community' (Alexander and others 1978: 178). In some conditions of the experiment, rats in isolation consumed nearly 20 times the amount of morphine consumed by the rats in the social condition (Alexander 2008: 195). However, there are important details in the data provided by the series of experiments. One of them is related to the fact that morphine solutions can be bitter. Accordingly, it was found that isolated rats who had not developed physical dependence avoided drinking opioids unless their solution was sweetened (Alexander and others 1981: 574-575). In one of the experiments, during a specific phase, female rats in the individual cages consumed less morphine in mg/kg compared to the female rats in the 'Rat Park', whereas the isolated male rats consumed more than their counterparts in the social condition (Hadaway and others 1979: 88), providing an indication of the important role that the experimental subjects' gender might have played.

The 'Rat Park' experiments are often interpreted and cited as 'evidence' of the environmental components of addictive behaviour. If an individual organism (rat, human, etc.) is placed under stressful and painful conditions, there is a higher probability that they will develop addictive patterns of use of psychotropic substances as a response to these conditions. Nevertheless, the researchers were more modest in interpreting the results as indications of the importance of housing and gender variables in experiments of self-administration, without making

any larger claims about the nature or the causes of addiction. Although they suggested the self-medicating properties of morphine as one possible explanation for the differences in consumption between the group of isolated rats and the rats in the social condition (Hadaway and others 1979: 89), another speculated reason for these differences is that morphine in the 'Rat Park' prevented the effective performance of important behaviours, decreasing the motivation to consume it (Alexander and others 1981: 574). The lead-researcher Bruce Alexander (2008: 194-5) framed the experiment as a refutation of the 'demon-drug myth' of addiction by placing emphasis on the environmental and social elements of the phenomenon, which cannot be explained by some supposedly distinctive property of the drug making it irresistible.

There have been various attempts to replicate the results reported by Alexander and his colleagues with a special emphasis on environmental factors and the consumption of psychotropic substances by rodents. In one study that examined patterns of cocaine self-administration it was found that isolated rats consumed larger amounts of the substance in comparison to rats housed in groups (Schenk and others 1987: 229–230). However, a study that examined both opiate and cocaine self-administration in rats housed in different settings, found no significant differences apart from the initial stages of the experiment where opiate consumption was higher in the group of the isolated rats (Bozarth and others 1989: 906). Three years later, another team of researchers indicated that rats tested in stressful conditions increased their self-administration of opioids (Shaham and others 1992: 618). Interestingly, the most faithful reproduction of the 'Rat Park' experiments, run by Alexander's graduate student Petrie (1996: 399), failed to replicate the results. This was attributed to the fact that Petrie used a different strain of albino rats than the one used by Alexander's team, leading him to suggest an increased role for genetics in determining the levels of self-administration of opiates in experimental studies.

According to the psychopharmacologist Sam Snodgrass 'Alexander's research […] was ethologically unsound and methodologically flawed' (Snodgrass 2018: 7). His main criticism of the 'Rat Park' experiments is that Alexander and his team placed both male and female rats in the social condition which inevitably led to them breeding, filling the habitat with rat pups (Snodgrass 2018: 7). Snodgrass finds equally troubling the fact that in the three publications of the 'Rat Park' experiments (Alexander and others 1978; Hadaway and others 1979; Alexander and others 1981) there is no mention of what happens with the pups after they are born, especially given that there were gender-related differences found in patterns of self-administration. Other researchers have noted the small number of the experimental subjects in each group—with one of them (female isolated rats) consisting only of two animals—and the methodological problem of having a different method to collect data for the rats in the 'Rat Park' and the rats in isolation (Gage &

Sumnall 2019: 918). Crucially, the 'Rat Park' experiments appeared to be premised on 'anthropomorphic' ideas about what constitutes social environment, pleasure and 'natural' conditions for rats. For example, it might be difficult to decide whether rats appreciate idyllic scenery as human beings do. Yet, the researchers painted a forest in the 'Rat Park' to the same effect.

Despite its original and interesting programme, Alexander's research was largely ignored by the scientific community of his time. Widely more influential were the studies done by Robins and others (1974: 235) who investigated the opiate abuse levels of American Vietnam War veterans. During the 1970s and amid the 'War on Drugs' declared by President Nixon there were increasing concerns about the US soldiers' addiction to opiates and the potential social crisis that their return could cause. Lee Robins was commissioned by Jerome Jaffe, Nixon's 'Drug Czar' (Hall & Weier 2017: 177), to do a study on the use of drugs by veterans while in Vietnam and after their return to the USA. Robins et al (1974: 235) reported that although one-fifth of her sample had developed physical or psychological dependence during their time in Vietnam in the 8- to 12-month period since they returned, only 10% had used opiates and less than 1% experienced dependence on them. This remarkable phenomenon is often interpreted as an indication of the importance of environmental factors, which often entails people inhabiting 'stressful environments', determining patterns of abuse of psychoactive substances. The argument supports that US soldiers were facing extremely stressful situations in Vietnam and the consumption of opiates might have provided some sort of relief. Upon their return, these stressors ceased to exist to a certain extent, leaving no need for the substances' self-medicating properties. However, there is a possibility other factors might have been in play: for example, the opiates were cheaper, more available, and more potent in Vietnam in comparison to those in the USA, increasing their salience to US soldiers who, upon arrival to their homeland, became concerned about the legal and familial consequences of their drug use.

As it happens with most complex social and psychological problems, establishing the impact of environmental factors in the genesis, development and treatment of addiction remains a difficult endeavour. Although Alexander's empirical research indicated the possibility that stressful environments lead to behaviours of self-medication in rats, he avoided making any larger claims with regard to etiological accounts of addiction. However, he later attempted to formulate a more comprehensive theory of the phenomenon drawing from his experience as a psychologist and his readings of philosophers, historians, and economists.

Alexander published his approach in the book *The Globalization of Addiction: A Study in the Poverty of the Spirit* (2008) where he frames addictive behaviours as a form of adaptation to the

generalized dislocation produced in a global environment dominated by the laws of the free market. An important step in his argument is the application of the concept of addiction to not only drugs and alcohol but other behaviours as well. He uses a classification of concepts of addiction in four groups: 'Addiction$_1$' refers to 'overwhelming involvement with drugs or alcohol that is harmful to the addicted person, to society, or to both' (Alexander 2008: 29), while 'Addiction$_2$' incorporates the behaviours of 'Addiction$_1$', but also refers to 'non-overwhelming involvement with drugs or alcohol' that has harmful consequences (Alexander 2008: 29). His preferred definition of addiction is denoted as 'Addiction$_3$' which refers to 'Overwhelming involvement with any pursuit whatsoever (including, but not limited to, drugs or alcohol) that is harmful to the addicted person, to society, or to both' (Alexander 2008: 29). This definition of addiction is used to consider, apart from drug and alcohol problems, pathological behaviours related to gambling, sex, online gaming, greed, and religious fundamentalism. Finally, 'Addiction$_4$' designates an overwhelming involvement with any kind pursuit which does not lead to harmful consequences.

Alexander claims that contemporary societies lead to a proliferation of 'Addiction$_3$' because people fail to achieve what he, following an interpretation of Erik Erikson's work (Erikson 1959; 1968), terms 'psychosocial integration'. Alexander (2008: 58) conceptualises with this term the processes that govern the interdependent relationship between the individuals and their societies. While individuals have an intrinsic need for belonging to groups of various magnitudes, they also long for the preservation of their autonomy. It is the outcome of the negotiation between these tendencies that allows the individuals to experience a sense of identity and meaning (Alexander 2008: 58). The collapse of the process of psychosocial integration is termed by Alexander (2008: 58) as 'dislocation'. Although he recognises the proximity with the concept of 'alienation' he prefers to use the term 'dislocation' in the way it was used by historian Karl Polanyi (2004[1944]: 76).

Alexander considers societies that are governed according to the laws of the free market as infested with a pervasive individualism, mainly because the capitalist system (beneficial as it may be in other respects) presupposes that everyone, despite their ethnic, cultural, and religious background will act towards their own self-interest destroying any other ties to their communities. Capitalism leads to the breakdown of these community structures forcing people to adopt individualist lifestyles. Indeed, according to him, traditional mechanisms of psychosocial integration (such as religion and national identity) are perceived today as obstacles in the free movement of capital (Alexander 2008: 61). In this scheme of things, the subsumption of all areas of individual and social life under the rules that guide economic activity leads to dislocation

prompting people to devise their own strategies of coping against it. Therefore, as Alexander (2008: 62) claims: 'Addiction$_3$ is neither a disease nor a moral failure, but a narrowly focused lifestyle that functions as a meagre substitute for people who desperately lack psychosocial integration.'

This is probably the most important contribution of Alexander to the theoretical debates about the causes of addiction. Instead of framing the phenomenon as either a disease or criminal conduct, Alexander (2008: 68-9) prefers to consider the various forms of addiction as adaptive responses to the dislocating forces of contemporary capitalism. He refrains, however, from justifying addiction, by suggesting that the perception of a behaviour as a possible adaptation mechanism does not mean that it is desirable or unproblematic. As insightful as his approach may be, Alexander's argument has some limitations. First, as he admits (Alexander 2008: 67), his dislocation theory of addiction cannot provide an explanation for the different pathways that people suffering from lack of psychosocial integration follow. Some might end up facing serious addiction issues or other psychopathologies. Others become able to overcome these difficulties without catastrophic responses. Moreover, his book fails to provide an explanatory mechanism for how addiction develops in the first place, other than mentioning arguments drawn from the self-medication hypothesis of addiction. Nevertheless, these suggestions refer more accurately to specific drugs (opioids) and less accurately to other (stimulants) which do not have straight-forward analgesic properties. In one review of the book, Alexander is criticized for his 'idiosyncratic' method of engaging with the theories he discusses and his choice of not discussing empirical studies that approach similar questions to those he puts at the centre of the dislocation theory of addiction (Barry 2010: 462). However, Barry's criticism presupposes that these empirical studies (which he does not cite probably due to constraints of space) provide decisive and clear-cut evidence in support of Alexander's theory.

The present chapter will address some of the limitations found in Alexander's theory about the pernicious effects of contemporary capitalism in the human psyche. It is an attempt to construct an ecological theory of the transition from psychotropic prostheticisation, an evolutionary force which can be positive at times, to addiction, a pathological condition permeating the existence of an individual. In order to achieve that, I will start by discussing Georges Canguilhem's concept of normativity and consider the advantages of approaching addiction as a state of being where individuals are unable to create new norms in how they relate with their milieu. Then, I will consider Bernard Stiegler's thoughts on the transformations of libidinal economy in contemporary capitalism and his concept of 'addictogenic society'. Finally, as a supplement to Stiegler's lack of consideration of the biological elements of the general addictification of society,

I will focus on Gerald Moore's ideas on how consumerist economy is founded on the stimulation of the nervous system.

5.2. Canguilhem's theory of normativity

One of the most troubling enigmas posed by addiction to mental health practitioners and researchers alike is the difficulty of defining the parameters according to which the behaviour of concern is to be considered problematic or not. Of course, one can find various attempts to assess how many consumed portions of alcoholic beverages per day indicate problem drinking (Feunekes and others 1999: 111; Reinert & Allen 2007: 190) or how many hours spent playing video games per day can indicate addiction to video games (Triberti and others 2018: 186). But these attempts at quantitative assessment, however useful for practical purposes, fail to consider the contextual and individual elements of these behaviours. As Valverde (1998: 26) notes, the fact that addiction diagnosis often relies on non-strictly medical criteria (such as feelings of guilt following use of psychoactive substances or legal problems) 'indicates that physicians have not succeeded in defining the boundary between the normal and the pathological in *medical* terms.' The argument presented in this section is that an innovative approach to addiction can be constructed if the phenomenon is perceived through the lens offered by the French philosopher of science Georges Canguilhem. His reformulation of the concepts of health and illness, mediated by a critical examination of the concept of norm, are of particular interest for an attempt to provide a model of addiction that considers contextual and individual parameters as integral to the diagnosis and treatment of addictive behaviours.

Canguilhem was one of the most important thinkers of the 20th century in the fields of history and epistemology of sciences. Here, I will engage mainly with his seminal and most systematic work, the *Essay on Some Problems Concerning the Normal and the Pathological* (1991[1966]; from here on referred to as *The Normal and the Pathological*) that was written as a doctoral dissertation in medicine (Gayon 1998: 309). As a book, the text was originally published in 1943 followed by an extended version published in 1966. Another text that will elucidate parts of the argument is the chapter *The Living and its Milieu* published in Canguilhem's 1952 book *Knowledge of Life* (2008[1965]).

In order to understand Canguilhem's perspective, it is useful to see his work as a long meditation on how science and philosophy attempt to capture the processes of life. In this regard we can locate his contributions as part of the vitalist tradition (Wong & Wolfe 2015: 64). However, Canguilhem's insights should not be considered only in terms of an epistemological investigation

of scientific theories. Instead, in his work one can find interesting and original positions that have implications even for clinicians or empirical researchers. A fundamental reason for this wider relevance is that Canguilhem approaches the phenomenon of life from a biological point of view, focusing on the living organism and its relationship with the milieu and thus offering a sophisticated perspective that overcomes the limitations of positivist accounts of living processes. Already from these preliminary remarks, the significance of the concept of milieu becomes apparent. Walking in the footsteps of important theorists of the phenomenon of life, such as Claude Bernard, Jacob von Uexküll (2010[1934]) and Kurt Goldstein, Canguilhem approaches the milieu as a term that refers, on the one hand, to the material conditions of existence and, on the other hand, to the range of possibilities that arise for the individual organism to 'maintain itself as such' (Talcott 2019: 171). The milieu, according to Canguilhem (KL: 109) is what poses problems to an organism which needs to find the appropriate solutions. Nevertheless, this understanding of the milieu does not imply a simple relationship where the forces of the milieu act and the organism responds. Instead, organisms have an active role in shaping their own milieu. It is in this context that one finds Canguilhem claiming, decades before these ideas become popular, that human beings can only be understood through an examination of their behaviours within the contexts of their milieus (KL: 109; NP: 159). The milieu of living organisms is for Canguilhem (NP]: 179), the 'work of the living being who chooses to shield himself from or submit himself [*sic*] to certain influences.' Therefore, the concept of milieu cannot be reduced to the ordinary understanding of the term 'environment' since it is shaped by the perceptions, values, desires, and priorities of the individual organism regarding its external conditions. From this point of view, the same geographical location, governed by the same physico-chemical processes constitutes a different milieu for each living organism: 'within what appears to man [*sic*] as a single milieu, various living beings carve out their specific and singular milieus in incomparable ways' (KL: 118).

It seems clear that the life of the organism cannot be examined without the consideration of its milieu. The interesting question, then, refers to the process in which life finds significant obstacles in its self-perpetuation and the organism struggles to form a harmonious relationship with the milieu. A reading of Canguilhem's *The Normal and the Pathological* is a significant step towards understanding these problems.

In this text, Canguilhem takes issue with the popular view of his time that considered illness as a simple quantitative variation of a perfectly defined state of physiology (NP: 57). According to this view, illness is either too much or too little of a certain state of bodily function. For Canguilhem (NP: 57), the proliferation of this view is to be attributed to an attempt of the fields of pathology and medicine to establish criteria of objectivity and, thus, scientificity. However,

he criticizes what he considers the 'narrowness and inadequacy' of this principle regarding pathological states of being (NP: 227). Questions of norms, health and disease are contextual. An example used by Canguilhem (NP: 119-20) is the injury of a young man who extensively cut his arm on a moving circular saw without affecting the internal vascular nerve bundle. Although a quick and successful operation allowed a certain degree of functionality, compared to his other arm, the one that was hurt would never attain the same level of functionality. In another case, that of 'a simple-minded farmhand' (NP: 121) who broke his leg but due to the neglect of his employer the injury did not heal appropriately, the medical team had to re-break the leg and set the shinbone properly. As Canguilhem (NP: 121) writes, the standard of health adopted by the doctors of this farmhand would not have satisfied an Olympic runner or a ballet dancer of the Paris Opera. These two examples indicate that what constitutes a 'norm' in medicine is a far more complex notion than it seems.

To avoid this impasse Canguilhem produces a critical exploration of the concept of the norm and the normal. The word 'norm' is of Latin origin (norma, from the Greek γνώμων; LSJ) and referred to the square used by carpenters to obtain right angles as well as to a standard (of practice or behaviour) (OLD 1968: 1189). According to Canguilhem (NP: 125) this origin gives a dual signification to the word normal:

> (1) normal is that which is such that it ought to be; (2) normal, in the most usual sense of the word, is that which is met with in the majority of cases of a determined kind, or that which constitutes either the average or standard of a measurable characteristic.

Canguilhem observed that, in the medicine of his time, the normal state of the organism is conceived as both the usual state of the organs, including the related physiological processes, and the ideal state of these organs (Elden 2019: 17). Therefore, physicians confused the habitual state of the organism with what it 'should be' as an overall objective in therapeutics (NP: 126).

Interestingly, a major influence among physiologists and biologists in Canguilhem's argument, is the German neurologist-psychiatrist Kurt Goldstein. This is not a random choice, since, according to Canguilhem (NP: 116) psychiatrists of his time had made considerable progress in their theoretical investigations into the normal and the pathological, a progress that has not been taken seriously by physicians and physiologists. The most important work by Goldstein was published in 1934 with the title *The Organism: A Holistic Approach to Biology Derived from Pathological Data in Man* (1995). Following the great German tradition of neurology, Goldstein showcased the importance of pathology in the understanding of normal physiological mechanisms as well as the examination of the environment for an integrated approach to mental health. For him, a 'normal'

organism is the one which 'actualizes its essential peculiarities', meaning that it is capable to meet the demands posed by its milieu (ORG: 325). In the realm of pathology, the behaviour of the organism is 'peculiarly changed' (ORG: 328), appearing as a 'catastrophic' response to the environment. As Goldstein (ORG: 328) notes, physiological observations of vital signs such as pulse and temperature, serve only to confirm to the physician that his assumption of pathological state is accurate. The same applies to the patient, whose experience of disease entails a sense of uncertainty and anxiety in their interaction with the environment (ORG: 328). The correspondence between the physician's understanding of the pathological state and the patient's feelings of disease show to Goldstein (ORG: 328) that 'the normal relationships between organism and environment have been changed through a change of the organism.' What used to be 'normal' for the organism in this specific environment is now pathological because the organism has changed. The critical point for Goldstein (ORG: 329) is that the application of the concept of the norm in psychopathology needs to consider the 'entire concrete individuality', thus constituting an 'individual, personal norm'.

However, regarding the cases of severe neuropsychiatric disorders he was mainly interested in, Goldstein is clear that aiming to recover to the previous level of functionality is futile (ORG: 331) and the therapeutic endeavor should focus instead on creating a new milieu. As he says: 'Insofar as medical therapy does not eradicate the damage, it consists only in rearranging the milieu' (ORG: 338). This rearrangement of the milieu is the task at hand for the medical profession in general whose practitioners need to facilitate a supportive environment of adjustment to the new condition of the organism, while making sure that their treatment is not leading to such a 'shrinkage of the milieu' that would deprive the individual of the possibility of actualizing their potential (ORG: 339).

Goldstein proposes that therapeutics should aim at instituting a new norm. According to Gayon (1998: 314), Canguilhem takes this idea and transforms it with two further developments. First, Canguilhem expands the range of application of Goldstein's perspective to all illnesses and not only to neuropsychiatric syndromes. Secondly, Canguilhem introduces the new concept of normativity to formulate a theory of health as the capacity of the organism to create new norms in its relationship with the environment, which entails the capacity of the organism to transform its milieu. So, his approach claims that health is not a construct to be defined quantitatively according to an average measurement. Instead, the states of health and illness are to be decided by the individual's ability to create their own norms. An individual in a state of health is someone that far from being normal has the capacity to be normative. As he puts it: 'Being healthy means being not only normal in a given situation but also normative in this and other eventual situations' (NP:

196-7). Canguilhem (KL: 113) indicates that the relationship between the organism and the milieu is not primarily one of struggle or confrontation. Indeed, following Goldstein, he proposes that a life constantly constricted by the milieu is 'the archetype of a catastrophic situation' (KL: 113).

Illness, accordingly, is not simply a deviation from a pre-determined norm, quantitatively defined. It refers to the state where the organism experiences a reduced ability to tolerate environmental change. For Canguilhem (NP: 122), pathological states are not just 'reductions' from a state of health, disease is 'a new dimension of life' characterized by new but somewhat 'inferior' norms (NP: 193-4). Inversely, and reminiscent of Bernard's (1878) principle regarding the constancy of the *milieu intérieur,* Canguilhem defines health as 'a margin of tolerance for the inconstancies of the milieu' (NP: 197). In this framework, recovery constitutes not a return to a previous state of health but the establishing of 'repairs which are really physiological innovations' (NP: 196).

Canguilhem (NP: 197) wonders if it 'absurd to speak of the inconstancy of the environment' meaning that, although the human environment is recognisably unstable and precarious, the animal environment appears as a complex but organised set of natural (physico-chemical and mechanical) processes governed by laws. So, one would say that the 'inconstancies of the milieu' are an accurate description of the relationship that the human organism has with its environment, yet this cannot be the case when other species are considered. In that regard, Canguilhem makes a crucial epistemological point. The laws that scientists identify in any kind of environment are 'theoretical abstractions' which might guide the life of the organisms, but they are not the organisms' milieu (NP: 197). Instead, organisms live among other organisms determined by the events that take place following their interaction. As Canguilhem (NP: 197) notes: 'what holds up the bird is the branch and not the laws of elasticity.' Understanding life as simply a problem of chemistry, physics and mechanics fails to consider that organisms are living beings 'in a world of possible accidents' (NP: 197). In a sense, this is an important difference between biology and natural sciences. The former attempts to integrate value-judgments, errors, and accidents in its understanding of life, while the latter focuses on identifying abstract laws that describe physical, chemical, and mechanical processes. To know whether the outcome of one of these processes is significant or not, an examination of its possible impact on the organism's life is necessary. Living among other creatures with their own values, priorities and needs implies uncertainty, unpredictability, and contingency of the milieu. The inconstancy of the milieu is 'simply its becoming, its history' (NP: 197).

From Canguilhem's (NP: 173) point of view, 'the relationship between the biological norms of life and the human milieu seems to be both cause and effect of men's [*sic*] structure and

behaviour.' Such a statement might give the impression that he embraces an adaptationist perspective according to which the organism needs to constantly adapt to a hostile environment. This understanding would be reinforced by other statements which depict the life of the organism as an effort 'to not be let go by its milieu' which is 'indifferent' (KL: 104). One is tempted to see the similarities between these statements and contemporary arguments of evolutionary biology (Amundson 1994: 570) that frame the evolutionary history of the species as a series of adaptations to the environment. However, Canguilhem (NP: 282) is adamant that one should avoid a definition of the normal and the pathological 'in terms of their simple relation to the phenomenon of adaptation' given the 'often inopportune' application of the concept in psychology and sociology. Proposing that abnormality is a form of 'social maladaptation' implies that norms imposed by society are necessarily the 'best' norms, and individuals should adhere to them unquestionably (NP: 283). Canguilhem examines the scenario where a society is not functioning according to optimal conditions. In such cases, their norms cannot be taken as the ones that the individuals should adopt. Most importantly, the dominant view of adaptation referred to technical activity (NP: 283), conceptualizing the use of instruments to respond to an environment conceived of as being opposed to the individual. Such arguments, nevertheless, frame the environment as a physical and not a biological reality, ignoring the extent to which environments do not only shape organisms' behaviour and living activity, but are also shaped by them (NP: 283–4). The first view describes the relationship of the organism with the milieu as one of submission. Canguilhem's view describes this relationship as one of creativity, sculpturing and self-actualization, which even in cases of pathology allow the development of new norms, however inferior to the previous ones.

A great advantage of Canguilhem's thesis is its fundamental premise that health and pathology do not refer to an individual isolated from their environment but instead to someone that is in a constant interaction with their milieu. In a way, Canguilhem proposes a framework that can lead to a conceptualisation of addiction that is not limited by the positivist, reductionist, quantitatively oriented, totalizing claims of practitioners and researchers that endorse the BDMA. Far from having universal effects, psychoactive substances produce changes in the mental faculties of the individuals according to their pre-existing norms. Most importantly, the main question of health or pathology relates to how those changes facilitate or not the individual's ability to create new norms that preserve their identity and stability in a changing milieu.

Even if one adopts the Criteria proposed by DSM-V (APA 2013: 490–1) for the diagnosis of Substance-Use Disorders, a text which has nothing to do whatsoever with epistemology or continental philosophy, they will see that addiction can be conceptualised as a pathology of normativity, an impaired ability to create new and effective norms. Symptoms such as 'spending a

great deal of time in activities necessary for procuring, using and recovering from the substance', 'continued use despite negative consequences', 'tolerance' and 'withdrawal' indicate a state of being where the individual experiences an inability to create new forms of life that are not related to the substance. This observation becomes more pertinent with regard to two other symptoms described by DSM-V (2013: 491), namely: the failure to fulfil major occupational roles (work, school, etc.) because of the use of the substance, and the abandonment of 'important social, occupational, or recreational activities' for the same reason. The addicted individual has developed new norms in their relationship with the environment, but these norms are less valued in comparison to the previous ones, a conclusion that can be drawn from the fact that addicts often express their desire to quit. Addiction constitutes a pathological state for the organism because the latter fails to respond with diversity and invention to the demands posed by the milieu.

An important element in Canguilhem's understanding of the relationship between human beings and their milieu is the role played by technological artefacts in promoting or undermining processes of normativity. A strategy adopted by Canguilhem (KL: 96) is to consider 'technique to be a universal biological phenomenon' and to investigate the hypothesis that tools are extensions of the biological organs. He was aware of the life-enhancing possibilities of technical artefacts, but he understood the potential risks that they entail, reminding us of Freud who warned: 'Man [*sic*] has, as it were, become a prosthetic god. When he puts on all auxiliary organs, he is truly magnificent: but those organs have not grown on him and they still give him much trouble at times' (CD: 91–2). Canguilhem (KL: 109) refers to 'artificial creations' to which human beings occasionally succumb when these artefacts serve other purposes from those for which they were created. More specifically he writes: 'Within a human milieu, man [*sic*] is obviously subjected to a kind of determinism, but this is the determinism of artificial creations, from which the spirit of invention that brought them into existence has been alienated' (KL: 109).

To recapitulate, from a perspective inspired by Canguilhem, one could say that our capacity for norm-creation depends on our ability to read and respond to environmental stimuli. The process of addiction leads the *mindbody* to reorganise around a single kind of stimuli to the point of being blinded to others, hence a rigidification of the extent to which the individual cannot withstand environmental perturbation. That said, it would be legitimate to argue that, for example, the crack addict replaces their milieu with the milieu created by crack. Therefore, they could withstand more or less any environmental perturbation as long as it does not consist in an interruption of their drug-based lifestyle. This claim is complicated by considering the susceptibility of the addicted individuals to other kinds of ecological stress, such as issues of physical and mental health, legal consequences, and impairment in personal relationships.

Unfortunately, Canguilhem did not investigate the possibility that technological artefacts can become objects of addiction. However, his perspective is fruitful in conceptualizing contemporary addictive behaviours as normative activity of the human organism in their interaction with their milieu. Substance and behavioural addictions can be understood as pathologies of normativity in which technical artefacts lose their life-enhancing character and prevent the creation of new norms of life. The question then becomes: What is the role of the milieu in generating addictions of every kind and how could this possibly be prevented? In order to examine this relationship, I will have to return to the work of Bernard Stiegler.

5.3. Addiction as proletarianisation

Any attempt to examine the phenomenon of addiction approached as a relationship between the human organism and technical artefacts would have to consider the work of Bernard Stiegler. In the previous chapter, I recapitulated Stiegler's theory of technical evolution and showed why I think his argument supports my hypothesis of psychotropic prostheticisation as an evolutionary force. In this chapter, I would like to focus on the more 'symptomatological' aspect of his philosophy, the one concerned with the pernicious effects and the 'addictogenic' properties of consumer capitalism on the psychic organisation of the individual (SA: 18). There are of course important challenges inherent in this task. First, as with other central concepts of his thought, Stiegler rarely engages in a systematic manner with the problem of addiction. Usually, he commented on it when discussing the various ways marketing technologies transform psychological functions by standardizing behavioural patterns in Western societies. Secondly, he approached the topic inspired by his reading of Freud and other psychoanalysts (mainly D. W. Winnicott) using terminology such as 'drives' and 'desire' that some might find antiquated in the 21st century. Thirdly, he was not a clinician or an addiction specialist hence his remarks on the topic, have been criticized as overly generalizing (Moore 2018: 191), based on anecdotal evidence and sensationalist news items. One instance of this would be his reliance on the case of Emmanuel and Patricia Cartier (DD2: 97), a French couple whose uncontrollable consumerism led to heavy debt and child murder, as an example that consumerism can lead to addiction and nihilistic disaffection. Nevertheless, I consider Stiegler's approach fruitful for multiple reasons: a) because he emphasized the important role played by technical artefacts in the psychosocial constitution of human beings, b) from his perspective, addictive substances and activities are not-inherently negative but have both curative and toxic properties, and c) he considers the often neglected political and cultural dimensions of addiction. Addiction in Stiegler is theorised as one phenomenon among many that constitute the contemporary social malaise, which he attempts to

theorise as part of a project aiming to produce a critique of political economy of 21st century capitalism. As Miguel de Beistegui (2013: 182) notes, rather than engage with the work of Marx or other thinkers with a more specialized interest in economics, Stiegler draws from a different tradition which encompasses thinkers like Wilhelm Reich, Herbert Marcuse and in some instances Gilles Deleuze and Félix Guattari. This theoretical gesture appears to be a necessary step, as for Stiegler a critique of political economy can only be based on an analysis of libidinal economy. By this, Stiegler means the various ways the economy of production and consumption is sustained by the investment of libidinal energy which can be simultaneously and variously cultivated, controlled and manipulated. It is only in the context of his engagement with questions of desire that we can understand Stiegler's remarks on addiction. Before we discuss this aspect of his work, it would be useful to see how he incorporates the concepts of desire and libido in his general perspective on the relationship between technics and human evolution.

Stiegler's theory of technical evolution asserts that through technics humanity has evolved in unprecedented speed as opposed to other animals whose use of tools and other artefacts is limited. Following the mathematician Alfred Lotka (1945: 188), who compared the 'slow adaptation of anatomical structure and physiological function' in animals with the 'exosomatic' evolution of human beings, Stiegler (NAM: 243–6) contends that human life consists of a process where technical artefacts constitute the exosomatic organs that both support and threaten the processes of psychic and collective individuation. Individuation is a concept that Stiegler borrows from Simondon to indicate that individuals encounter each other not as already established entities but as dynamic subjects that are mutually transformed and transforming. Following Gilbert Simondon, Stiegler conceptualises the relationship between psychic and collective individuation as *transductive*, meaning that they are both constituted as they relate to each other. Thus, he produces a framework that he calls 'general organology' (DD3: 45), which connects the physiological organs with the artificial (or technical) and social organs (as organisations) (PFN: 419) presenting a picture of life that is constituted by the defunctionalisation and refunctionalisation of those organs (Moore 2017b: 195). Attempting to connect technical evolution and the experience of temporality, Stiegler claims that by acting as memory supports (tertiary retentions), technical artefacts allow humans to generate 'protentions' (TT1: 246; TT2: 115), through which we actively construct ourselves a future. It is through this capacity of anticipation that technicity constitutes an important element in the transformation of libidinal energy into desire. From a Stieglerian perspective, desire is created when technical artefacts are adopted to generate future possibilities, making possible new modes of thought and experience through which we actively create futures that otherwise would not exist (Moore 2018: 194). Desire, then can be defined as the interiorised affective state that

corresponds to the anticipation of the futures we have created through technics. According to Stiegler (DD3: 45), technics reconfigures the process of psychic individuation which functions according to the pleasure principle, while collective individuation adheres to the reality principle.

As I have mentioned in Chapters 1 and 4, in order to integrate his ideas on technicity, memory and desire, Stiegler theorises technical artefacts as *pharmaka*, following Plato's *Phaedrus* and Derrida, who used this word to designate the process of writing that simultaneously enhances memory and undermines it. Stiegler recognizes that the curative aspect of writing, overcoming the finitude of human memory, combined with its toxic side, making the faculty of memory deficient, is similar to the function of a drug (DD3: 85). Accordingly, Stiegler claims, every form of addiction is based on a *pharmakon*, a technical artefact and process of exosomatization that facilitates the expectation of a future, as in Stiegler's thought time does not pre-exist our experience of technics rather, the latter actively creates our experience of time. However, the *pharmakon* also increases our dependence on it, given its prosthetic qualities and its capacity to creates modes of experience and thought that will not exist without it. From this point of view, the pharmakon acts as the supplement which constitutes our intermittent humanity (DD3: 85). The term 'intermittent' here denotes the idea, often expressed by Stiegler, that the organisms generally understood as 'human beings' are 'artificially organised beings' whose dependence on *pharmaka* makes them always susceptible to becoming 'inhuman beings' (TT4: 13–14). Indeed, Stiegler (TC: 170) contends that we are predominantly inhuman, impulsive beings, in other words, creatures of habits; yet we retain the responsibility to intermittently 'elevate' our drives to the level of objects of desire, a possibility offered by technics. However, technics can also lock us in habits and rhythms that make the invention of a future impossible. Therefore, what humanity should strive to be is non-inhuman, an existential condition that can only be achieved intermittently.

Drawing from a sharp distinction between the concepts of drive and desire, Stiegler (2013: 390) claims that the latter is produced through the socially mediated process of sublimation and 'disautomatization' (Stiegler 2021a: 253) of the former. According to Moore (2018: 194) this is mainly an act of 'différance' where short-term pleasure is deferred in exchange for the anticipation of a future reward. It is not that technical artefacts take advantage of an already pre-existing desire. Desire itself is constituted by the technical supplement which however means that, as long as it is generated and externalized by *pharmaka*, it makes itself vulnerable to their toxic aspect, giving rise to the possibility of addiction.

An important element in Stiegler's argument regarding the originary technicity of desire (de Beistegui 2013: 186) is his appropriation of Winnicott's concept of the transitional object. Winnicott first described the transitional object in 1951, emphasizing that it is regularly the first

'not-me' possession of the infant and serves as a bridge between that which is comfortably familiar and whatever is disturbingly unfamiliar (PR: 1). It is an aid in the beginning of individuation, the separation of the infant from the mother and the external environment as a whole (Litt 1986: 383). A transitional object can be anything from a toy to a blanket 'that becomes vitally important to the infant for use at the time of going to sleep, and is a defence against anxiety, especially anxiety of depressive type' (PR: 5). The function of the transitional object is to allow the infant to overcome the feelings of helplessness and give the illusion of control over their environment (PR: 15). Making a claim that would eventually seem pertinent for Stiegler's views, Winnicott (PR: 1) reports that 'most mothers allow their infants some special object and expect them to become, as it were, addicted to such objects.'

Stiegler (OP: 1) claims that in a sense the transitional object 'does not exist'. Although, of course, it exists in a concrete, material sense as a teddy bear or a toy, according to Stiegler the real function of the transitional object is not constituted by the object itself, but by the value given to it as a representation of the passionate love *(amour fou)* between the mother and the child (Howells 2013: 144). The transitional object is the technical artefact which creates the transitional space where 'the mother *can* encounter *her* child' (OP: 1) and, in that capacity, it is the first *pharmakon*. As Winnicott (PR: 7 and 27) theorised, the vicissitudes of the libidinal investment in the transitional object have far-reaching implications for a range of behaviours and mental states (play, art, religion but also fetishism, obsessions, drug addiction). Stiegler (OP: 25) understands this phenomenon as loss of autonomy or as heteronomy. However, he also claims that autonomy in itself is the '*adoption* of heteronomy, that is, of a pharmakon, so that dependence opens a milieu.' Therefore, the pharmacological constitution of desire and its dependence on technics mean that human beings are not prosthetic as a species but also as individuals, always susceptible to the toxic aspect of the *pharmakon.* As Stiegler says:

> Wherever there is dependence and addiction, there is a pharmacological situation that makes it possible – the loved one is only constituted as object of desire by themselves becoming a kind of *pharmakon* surrounded by *pharmaka* that are fetishized objects (OP: 25).

The transitional object, and technics as its principle and extension, becomes addictive when the *pharmakon*, instead of allowing the possibility (or the illusion of a possibility) of a different future, undermines the capacity for anticipation, channelling the libido into a short-circuit of a traumatic present. Under these conditions, desire cannot even be formed (Moore 2018: 194), since individuals are under such stressful conditions that the deferral of pleasure becomes impossible,

settling for short-term gratification as it appears to be the only option. Combining Canguilhem's approach with Stiegler symptomatology, we could say that the prostheticity of the *pharmakon* becomes toxic and destructive when our co-constitutive relationship with technical artefacts does not lead to creation of 'superior' norms but instead it is oriented towards mere survival. However, inspired by Winnicott's conceptualisation of the transitional object, Stiegler posits that addiction can be 'positive', with love being a prime example. In the context of discussing the figure of the amateur, Stiegler contends that '*l' amateur est une figure du desir, et le desir est addictif*' [the amateur is a figure of desire, and desire is addictive] (Rochard, Birge & Stiegler 2020; see also Bradley 2021: 11). Elsewhere, he posits that love 'is the highest form of addiction' (DD3: 86). This idea fails to distinguish between addiction as a behaviour and the experience of passionate attachment towards an object, a cause, or a person, which sometimes can be detected in addiction among other phenomena. Indeed, the intensity of addictive urges often reminds us of passionate attachment, but the two concepts are not identical, only partially overlapping. Stiegler's formulation has similarities with the argument put forth by Peele and Brodsky in their book *Love and Addiction* (2015[1975]). Peele and Brodsky attempted to challenge what they considered as prevailing misconceptions in the field of addictions (mainly the idea that psychoactive substances are inherently addictive) indicating that human experiences are potentially addictive too. Starting from the premise that ideally love and addiction should be very different, Peele and Brodsky discuss cases where people involved in a relationship become dependent on each other to fulfil a need for security. Both drug-related and interpersonal addictions are attributed to a feeling of emptiness and insecurity that the addicted individual attempts to address by depending on a substance or a person, but eventually this dependency becomes the only value and cause for existence (Peele & Brodsky 2015: 92–93). As Szalavitz (2016: 150) notes, despite the authors' opposition to the disease-concept of addiction, this formulation ended up reinforcing the pathologisation of other behaviours too, creating a climate where all relationships could be considered as addictive and pathological. Although phenomenologically overlapping, love and addiction have a crucial difference that Stiegler paradoxically, as the par excellence philosopher of technics, fails to consider. Addiction is a relationship between a human being and a substance as a technical artefact or an activity involving technical artefacts. Even though it would probably be futile to attempt to define love, it is safe to say that while it can be technically mediated, in this discourse it refers mostly to a relationship between human beings giving rise to a very different existential experience than a relationship between a human being and a technical artefact, although Stiegler would probably say that human relationships are based on *pharmaka*. Interestingly, Stiegler associates love with addiction in an attempt to indicate that there is such thing as a positive addiction, while Peele

and Brodsky associate relationships of dependence and addiction to indicate that there are pathological instances of love and unhealthy relationships.

Stiegler's theory of the originary technicity of desire is not a-historical. Instead, he connects his symptomatology of addiction with a specific analysis of the contemporary sociocultural milieu. He emphasizes the paradox where modern societies having become 'control societies'—a term he adopts from W. Burroughs and G. Deleuze—render human individuals (paradoxically) uncontrollable by exploiting the tendency of non-inhuman beings to regress to the automatisms of the drives (DD2: 11). By enforcing an unprecedented level of control, contemporary societies create a condition where the formation of desire is impossible, depriving citizens of their singularity and hence of their status as *in-dividuals*. Stiegler (SM1: 50) conceptualises as an individual the 'I' who is capable of *adopting* the collective history of a 'we' but also creates its own norms of existence, as opposed to merely *adapting* to norms forced upon them from without, and more specifically by the culture industry. This loss of singularity, as 'standardised consumption of identical objects' and 'alienation from participation in circuits of symbolic exchange' (Crowley 2013: 124) can only lead to what Stiegler names *ordinary madness* (AD: 134), the triumph of nihilism and the impossibility of individuation. When our psychological faculties are subsumed under the power of calculation and calculability, our capacity for the 'extra-ordinary' is lost, exacerbating processes of disinhibition and infantilisation that makes us irresponsible and desperate (AD: 232).

An important force in this historical development has been the exploitation of libidinal energy, which is what 'contains and maintains the drives' (OP: 51), by the marketing mechanisms generally conceived as operating under the paradigm of industrial populism (DD3: 9). Stiegler recounts the case of Edward Bernays (DD1: 107), who was Freud's nephew and a pioneer in public relations and marketing. He was instrumental in the marketing campaign of American Tobacco Company (Amos & Haglund 2000: 4) during the 1920s, effectively promoting public smoking by female consumers as an act of freedom (cigarettes were advertised as 'Torches of Freedom') and a method of losing weight. Bernays was interested in discovering techniques of public persuasion and he thought that introspective psychology could offer the tools to manipulate people's attitudes, beliefs, and habits even towards positive change (Bernays 1928: 959). Profoundly influenced by his uncle (Olasky 1985: 19), Bernays understood the importance of unconscious identification processes (Stavrakakis 2006: 86) and collaborated with corporations and state agencies focusing on the emotional investment of the consumer in the commodity. Stiegler (DD3: 86) perceives this as an instance of a general movement that started in 20th century towards the 'industrial exploitation of libidinal energy', leading to addictions that are extremely toxic.

It is necessary to mention that for Stiegler (PFN: 373) the term 'addiction' does not signify always a negative state of dependence and a pathological condition ('l'addiction n'est pas nécessairement pathologique'). Following the etymology of the term, he approaches addiction as a pharmacological phenomenon that is deeply associated with desire, libidinal investment and even love. Stiegler claims that there is something addictive in human existence itself ('l'on peut soutenir que l'existence humaine a quelque chose d'addictif') (PFN: 373). As Moore (2018: 194) reminds us, for Stiegler the relationship between technics and 'spirit'[29] is always one of dependence, since the 'spirit' is externalized but also constituted through technical, mnemonic supports. Like cases of severe addiction, the human 'spirit' cannot exist without technical supplements, making its constitution a somewhat addictive process. Stiegler contends that 'the great addiction, making all others possible, is spirit' (DD3: 86).

At the same time, Stiegler (DD3: 32–33) believes that the most recent realization of the always present danger of disadjustment between the technical and the social system has resulted in capitalism losing its 'spirit' leading to a 'generalization and mutation of addiction' (DD3: 85), a condition of universal spiritual and symbolic misery, understood here as both poverty and malaise. This is related to a concept that is fundamental in Stiegler's thought, namely the process of proletarianisation.

Here, Stiegler mainly follows the work of Gilbert Simondon, who developed an entire conceptual system to describe the process of the interaction between the individual, the milieu and technics (IND: 225). Simondon, as well as Stiegler, understands this interaction as a transductive relationship (ETO: 210), a relationship in which the nature of the various elements is constituted by their relationship with each other. The process of individuation is as old as the genus *Homo*, however, a recognisable shift happens with the advent of modernity and the industrial revolution. Before modernity, human beings were *technical individuals* since they were the tool carriers (SM1: 48–49) and every form of strictly technical entity (like the hammer, the wheel, etc.) served human needs. However, with the industrial revolution the machine became the technical individual and human beings, as labourers and assemblers (that is, when they function as engineers or managers), became their servant (SM1: 48). This development is a loss of individuation because the role and activity of the human being is now formalized by the machine, something that Simondon

[29] Stiegler uses the term *esprit* to denote simultaneously both senses of the word in French, that is spirit but also mind. As he explains in *Uncontrollable Societies of Disaffected Individuals* (DD2: 2) the first meaning of the word is not intended as a reference to some kind of vaporous 'spirituality' but refers instead to 'that which, passing through the organisation of matter, opens the process of conjunctions and disjunctions, and thus of trans-formations and trans-individuations, in which psychic and collective individuation consists' (DD2: 3).

understood as the main process of alienation (SM1: 49), a term that Stiegler replaces with proletarianisation. Simondon, although inspired by Marx (Chabot 2013: 36), disagrees with the latter's conceptualisation of the process of alienation. According to Simondon (ETO: 133), the alienation of the worker from the means of production is not only a matter of property or non-property, meaning that the source of alienation is not only that the worker does not own the means of production. He contends that alienation refers mostly to the question of continuity or discontinuity between the human and the technical individual (i.e., machine). It is not only a transition from the condition of the craftsman, who was the owner of the means of production and his tools, to the worker, who does not own any of those. Alienation takes place 'at the physiological and psychological level of the individual properly speaking' (ETO: 133) with both capital and labour being alienated from the machine. In a bold claim, Simondon suggests that 'the relation of property with respect to the machine contains as much alienation as the relation of non-property, even if it corresponds to a very different social state' (ETO: 134). Stiegler conceptualises this alienation at the 'physiological and psychological level' as a question of knowledge, where becoming proletarian means losing knowledge (DD1: 62) losing *savoir-faire* (know-how) and proximity with the product of labour, thus transforming the worker/creator into pure labour force whose exclusive motivation to continue working is to subsist. It is important to note that proletarianisation is not synonymous with pauperization (this difference is one of the main reasons Stiegler opposes the identification of the proletariat with the working class). Disindividuation, the short-circuit of psycho-social individuation, has been extended in the cultural era of capitalism to the human being as a consumer. Stiegler's application of the concept of the proletariat to consumers does not mean that he neglects the pernicious effects of contemporary work environments on the psyche of those employed in various sectors of the economy. A significant distinction in the Stieglerian corpus is the distinction between work (*travail*) and employment (*emploi*), with the former referring to an activity that is based on the transmission, circulation and production of knowledge, in other words, an activity that is raised above the level of mere survival (AS: 155). Employment, on the other hand, refers to a mechanised system that deprives people of initiative and professional knowledge (DD1: 104). This observation does not only apply to factory workers but also to people in the service industry and administrative staff, who are forced to sell their labour in low-paying jobs that consist of repetitive and meaningless tasks. Moore (2018: 203) has attempted to draw parallels between this Stieglerian distinction and the concept of 'bullshit jobs' introduced by the anthropologist David Graeber (2018: 18), who uses this terminology to define forms of employment that are 'completely pointless, unnecessary, or pernicious' to the extent that the employee is unable to justify why their jobs even exist, despite an obligation to

pretend otherwise. Crucially, Graeber (2018: 99) emphasizes the significant psychological effects of 'bullshit jobs' on the people who do them, using the concept of 'spiritual violence' to describe the feelings of hopelessness, depression and self-loathing induced by these types of employment. Unfortunately, we do not have at our disposal a research report that would attempt to integrate Graeber's analysis with empirical evidence regarding the impact of 'bullshit jobs' on substance misuse and other addictive behaviours. However, in a peer-reviewed article published in *Work, Employment and Society*, the authors indicate that there is some legitimacy in Graeber's concept of 'spiritual violence' as reports of depression and anxiety are consistent with people claiming that they find their job useless in a large data set of European Working Conditions Surveys (EWCS) from 2005–2015 (Soffia and others 2021: 18). At the same, the authors also mention that a plausible hypothesis is that people with mental health symptoms might tend to find less value and usefulness in their jobs.

As mentioned above, the globalizing process of capital and its basic medium, the culture industry, has substituted social control with behavioural control according to the needs of marketing. Various forms of mnemo-technologies have transformed consciousness into an area of investment, producing variations on effectively mass-produced subjectivities that live, work, desire, and thereby consume in the same way. In the past, distinct social classes had not only different income or different status but also different desires and objectives. Nowadays, with the advent of the mass culture, desires have been standardized independently of differences in social class. If the loss of individuation in the industrial revolution meant that the workers were proletarianized with respect to their labour, the loss of individuation—of whose consequences we are not yet fully aware—during the hyper-industrial epoch means that consciousness itself has become a commodity. In this state of decadence, it is not just working-for-subsisting that is rationalized but the transformation of living itself into subsistence (DD1: 63). The substitution of existence by subsistence or survival (the loss of *savoir-vivre*) is itself a great reason for the feeling of unhappiness and lack of meaning in life. However, there is one more reason why people become disaffected. Due to this loss of individuation, people cannot attach themselves aesthetically to singular objects (SM1: 5), defined broadly in psychoanalytic terms, which would therefore encompass everything from songs, to a person, a political movement, etc. Singularity is transformed into particularity. Since the 'I' desires the same things as 'they' ('I's' libido is channelled to objects of consumption like the libido of 'they') it is not possible to love oneself, leading to an experience of the loss of primordial narcissism. As explained by Stiegler (SM1: 6): 'it is only possible to love oneself starting from the intimate knowledge of one's own singularity.' The loss of primordial narcissism constitutes what Stiegler describes as symbolic misery. Symbolic misery

describes also a state where the individual loses the capacity to project themselves on to a world, which also means to construct their own 'world', being expected to simply adapt to whatever is forced upon them (SM1: 62).

Western societies, not having created protective mechanisms for the toxic potential of technical *pharmaka*, constitute a milieu of generalized addiction (DD3: 85), an environment of 'proletarianized' *dividuals* incapable of sublimating libidinal energy into 'desire'. An important aspect of this 'diagnosis' is Stiegler's thesis regarding the *liquidation* of the super-ego in Western societies (DD2: 5; DD3: 70). Drawing from a complex analysis of Marcuse's *Eros and Civilization* (2015[1955]), Stiegler criticises the former for his presumption of a certain 'natural' state of desire (DD3: 46), while for Stiegler desire is constituted through our engagement with technical artefacts. At the basis of Marcuse's thinking, according to Stiegler, we find an opposition between pleasure and reality as principles (DD3: 55), while they should be understood as tendencies that compose and not oppose each other. The composition of reality and pleasure means that the super-ego plays a significant role in the formation of desire. Stiegler is inspired by Marcuse to suggest that contemporary societies destroy the 'super-egoistic barriers' to consumption and no longer inhibit access to the pursuit of short-term pleasure, making impossible the transformation—which is also a socialization (DD2: 5)—of drives into desire (DD3: 70). Addiction is one of the psychopathologies that constitute also a sociopathology (DD2: 94). Their proliferation, combined with the collapse of political institutions and the generalized proletarianisation, threatens the survival of humanity at a planetary level (DD2: 4; NA: 52).

While scholars of Stiegler's 'symptomatological' work attempt to integrate his approach on addiction in order to construct a theory of addiction to digital technologies (Baranzoni 2020: 12), my suggestion is, instead, to adopt the reverse strategy—which is probably more faithful to his broad interpretation of technics—and consider most forms of addiction as pathologies of the relationship that the human organism has with technical artefacts in its interaction with the milieu. Understandably, the expansion of the 'digital form' in all areas of everyday life gives credence to Stiegler's speculation that indeed our historical moment is one of generalized addiction associated with the proletarianization of the consumer. However, his argument is susceptible to the accusation that it romanticizes a non-consumerist way of life, inevitably giving the impression of a certain nostalgic conservatism (Moore 2018: 191). Other commentators have also indicated that Stiegler's ideas are subject to conservative assumptions (Hansen 2017: 185; Turner 2021: 80) and his assessment regarding 'generalized proletarianization' is often considered 'too grim' (Baranzoni 2017: 148).

The main limitation of Stiegler's cultural 'diagnosis' is neither his suspected conservatism nor his often-apocalyptic tone. These can be understood as—to a certain extent—unavoidable tendencies in social criticism. I consider, instead, as the most significant limitation in Stiegler's complex edifice, his adoption of a certain reading of psychodynamic theory that draws a sharp distinction between the concept of the drive[*pulsion*] and desire, following a particular emphasis on Freud's *Civilization and its Discontents*. This critique is not intended as a rejection of psychoanalytic concepts *in toto*, but as a recognition of the need to approach them with awareness of their historical and contextual background. Freud's thought was formed in a very different sociocultural milieu from ours. In the historical period of the birth of psychoanalysis, the experience of pleasure was localized in its relationship with wish-fulfilment, drives and sublimation. Psychology with its related disciplines were still finding their steps in addressing similar phenomena. I am not saying that recent developments in psychology and neuroscience make psychoanalysis irrelevant, it is nevertheless important to admit that Stiegler's psychoanalytic terminology and his method of using it remain abstract and open to criticism, as he neglects to engage with research in neurobiology and psychology that have attempted to address similar questions. In addition, remaining at this level of abstraction and despite writing repeatedly about 'drives' and 'desires', he fails to engage with research on contemporary sexuality in any concrete terms. An intellectual endeavour which could be meaningful, especially given his bold claim regarding the 'destruction of the super-ego' in contemporary society and the subsequent 'destruction of libidinal energy' (DD2: 53).

It could also be hypothesized that it is Stiegler's peculiar interpretation of psychoanalytic concepts which led to the conflation of the experience of addiction with the feeling of passionate attachment, occasionally concluding that any form of strong appetite/desire is an addiction. I use the adjective 'peculiar' because Stiegler seems to be the only cultural theorist working with psychoanalytic concepts that promotes this view. Psychoanalytic thinkers—including Freud who in a letter to Fliess (22nd December 1897) indicated that masturbation is the primary form of addiction, and the latter is probably incurable (1985: 287)—have been traditionally less ambiguous about framing addiction as a fundamentally negative state of being, although as a symptom it can possibly have a protective function in an attempt to resolve a conflict (Loose 2015: 166). The concept of 'positive' addiction is especially problematic if we consider Stiegler's (OP: 29) own approval of Canguilhem's suggestion that milieus are inconstant [*infidèle*]. The state of addiction implies a difficulty or inability to change a behavioural pattern. It is the opposite of creating 'superior' norms in a changing milieu, putting limits on the idea that there is such thing as a 'positive' addiction.

5.4. Dopamining and limbic capitalism

In an attempt to overcome the limitations of Stiegler's heavily psychoanalytic conceptual apparatus, Gerald Moore (2017a; 2018; Moore & Stiegler 2020) has supplemented the former's thought on technics and desire with ideas drawn from the contemporary life sciences. Studying a range of addiction specialists (such as Bruce Alexander 2008; Mark Lewis 2015; Natasha Dow Schüll 2012) that examine the environmental components of the phenomenon, Moore (2018: 191) describes the contemporary permutation of capitalism as the latest stage of 'dopamining', a centuries old industrial paradigm whose operational principle is the stimulation of the nervous system and, more specifically, the extraction of dopamine (Moore 2017a: 72). In what amounts to an important observation regarding the historical determinants of addiction, Moore (2017a: 72) indicates that the capitalist economy appears to function as a system based on the manufacturing and selling of addictions, a tendency that is overwhelmingly evident in the multiple ways contemporary economic forces seek to exploit in the digital sphere the consumer's attention, emotions, and excitement.

Adopting Alexander's (2008: 61) dislocation theory of addiction, Moore (2018: 191) claims that 'dopamining' as a paradigm of socioeconomic organisation functions in a double movement where technical artefacts (from drugs and spices to books and television) are oriented, perhaps inadvertently at first, but with increasingly deliberate targeting over the course of capitalism's history, towards the extraction of dopamine. Simultaneously they act as anxiolytic adaptations to a stressful, monotonous and overwhelming milieu formed by the disadjustment caused by the same artefacts. Therefore, one can speak of a recursive structure in capitalist economy where the toxicity of the *pharmakon* creates the necessity for its curative aspect, which however can only be therapeutic in the short-term as its addictive properties will render the individual incapable of constructing a new milieu through the adoption of new 'superior' norms. Addiction, and the lifestyle associated with it, initially increases our margins of tolerance for the perturbations of our environments, but it eventually makes us dependent on the *pharmakon* and the milieu that it creates. Instead of using technical artefacts to anticipate and thus construct a different future, the individual is deliberately hooked on various forms of consumerist immediate gratification. 'Dopamining' is the economic model that manufactures addictive patterns of behaviour and simultaneously creates the conditions of social malaise that reinforce these patterns of behaviour. It can be described as a complex, historically resilient (so far) technique of profit-making that has evolved from the times of the spice trade into the contemporary so-called 'attention economy' (Citton 2017: 179-80). This system is exploiting the neural basis for anticipation of reward and motivation, which is highly dependent on the dopamine receptors located at midbrain regions (substantia nigra, ventral

tegmental area) projecting to the striatum (nucleus caudatus, putamen, ventral striatum, in particular the nucleus accumbens) and the frontal cortex (Kirsch and others 2003: 1087). Contemporary patterns of consumption centred on immediate gratification desensitize the reward circuitry of the brain, reinforcing the synaptic pathways associated with the objects of addiction and weakening others, thus creating a state of narrowed attention and limited horizon of possibility (Moore 2018: 198). In Canguilhem's terms, 'dopamining' allows the creation and stabilization of only a specific kind of behavioural norms, those that are associated with consumption and short-term pleasure, shrinking the potential for self-differentiation and transformation.

Elements of Moore's argument were also affirmed by historian of addiction David Courtwright (2005; 2019). Courtwright (2005: 121) introduces an understanding of modern capitalism as *limbic capitalism*, a business paradigm that marked a shift from the provision of simple services and lasting products to an enduring focus on offering pleasurable experiences that are more profitable because of their salient features as well as their addictive properties. Limbic capitalism does not only refer to drugs and alcohol but also to gambling, palatable foods and pornography. As Courtwright (2005: 121) notes, since the times of the early British Empire, 'entrepreneurs exploit evolved drives and then provide the goods and services to cope with the damage.' Courtwright (2019: 6) suggests that 'big business' in collaboration with governments and illegal organisations target the limbic system, a brain structure that has critical evolutionary function to make profit in exchange for transient pleasures. Through a Stieglerian reading, limbic capitalism, using technical artefacts, repurposes physiological organs that are prone to addictive consumption in order to perpetuate itself. This assertion does not imply that market forces in every instance target the limbic system and other neurobiological structures consciously or intentionally. It is also possible that the capitalist configuration of economy, regardless of the intentionality of its main agents, relies on the manufacture and selling of addiction to sustain itself, indicating that we can assume that contemporary society is indeed addictogenic.

5.5. Conclusions

In this chapter, I attempted to develop an argument that would allow an interpretation of how the transition from psychotropic prostheticisation to addiction takes place. In this process, I investigated the idea that contemporary societies are based on a techno-logic which is founded on the addictive properties of technical artefacts. It is difficult to claim, without indulging in overgeneralization, that addictions of various forms are an outcome of an addictogenic environment. As Alexander (2008) notes, some individuals develop mal-adaptive modes of

existence in a milieu of social dislocation while others manufacture their own strategies to overcome the problems posed by such environments. My reading of the concepts of 'dopamining' and 'limbic capitalism' does not entail an apocalyptic perspective on the often-alarming effects of digital capitalism, but an appreciation that a society based on short-term profit and quick 'fixes' might constitute a milieu where psychotropic prostheticity is both inevitable and necessary. The attempt to integrate cultural criticism with the discourse of neurobiology seems promising in overcoming the shortcomings of Stiegler's abstract and largely anecdotal account of addiction as proletarianization. At the same time, it is worth noting that in his work we find the first articulation of a technophilosophical theory of addiction that emphasizes elements from both natural and social history, thus integrating evolutionary perspectives with the critique of political economy.

However, following Canguilhem, I disagree with Stiegler on his concept of positive addiction, an idea that can also be detected in Alexander (2008) with his reference to $Addiction_4$ which designates an overwhelming involvement with any kind pursuit which does not lead to harmful consequences. Addiction, as an inability to create new or 'superior' norms according to individual and social expectations, will always be pathological in a milieu which remains (by the virtue of comprising individual organisms governed by unpredictable forces) inconstant. Consequently, the question of normativity becomes also a question of transforming the existing milieu and creating a better one. In this sense, addiction recovery is not simply the quest for abstinence and redemption but also a creative process of self- and social transformation. In the next chapters I will consider these problems.

Chapter 6: Autonomy in addiction

> They did not start using drugs for any reason they can remember. They just drifted along until they got hooked. If you have never been addicted, you can have no clear idea what it means to need junk with the addict's special need. You don't decide to be an addict. One morning you wake up sick and you're an addict.
>
> —William S. Burroughs (2008[1953])

6.1. Introduction

According to the psychoanalyst Rik Loose (2002), a specialist in addiction treatment, Freud was always sceptical about the suitability of analysis for the treatment of addiction. Despite having under his care, during his long professional practice, numerous patients who faced addiction problems (Roudinesco 2016: 54, 66), Freud seemed to believe that the analytic method was not effective for addicts because difficulties in the pathway of treatment would lead them to further substance abuse. Regardless of whether this pessimism about the effectiveness of a specific type of psychological treatment is justified or unjustified, it provides an indication about the level of complexity and the multiple risks present in the process of recovering from addiction.

Without dismissing the significant progress in the development of various elaborate techniques of battling addictions, addiction recovery continues to be an elusive concept. A critical caveat regarding addiction treatment refers to the question of what constitutes a successful recovery itself. As it can be seen in an important publication on drug addiction treatment by the National Institute on Drug Abuse (2018: 3), the idea that 'sustained abstinence' is the primary indicator of a successful treatment is still dominant. Others propose that abstinence is not identical to recovery and insist that the latter should reflect the ability of individuals, families, and communities to 'develop a healthy, productive, and meaningful life' (White 2007: 236). According to this definition, developed further in William White's *Peer-Based Addiction Recovery Support* (2009), recovery consists of three elements: 'sobriety (abstinence from alcohol, tobacco, and unprescribed drugs), improvement in global health (physical, emotional, relational, and ontological—life meaning and purpose), and citizenship (positive participation in and contribution to communal life)' (2009: 16). This definition is similar to the one proposed by the Substance Abuse and Mental

Health Services Administration (SAMSHA 2012: 3) who defined recovery as 'a process of change through which individuals improve their health and wellness, live self-directed lives, and strive to reach their full potential.' Similarly, the UK Drug Policy Commission defines recovery as a 'voluntarily sustained control over substance use which maximises health and wellbeing and participation in the rights, roles and responsibilities of society' (2008: 6). From these definitions, we see as a general direction the suggestion that successful treatment should aim not only at abstinence but instead should involve a life-encompassing positive transformation of individuals, their families, and communities with an emphasis on 'self-directed' lives and 'sustained control' over the substance. Conceptualising recovery in such terms indicates that it is important to investigate questions of autonomy and self-control in both the experience of addiction and in its treatment.

Addiction treatment, however, is far from being only an attempt to address an individual problem. At an institutional level, it has become a critical component of the judicial and legal system in the USA and elsewhere, as part of an effort to overcome the challenges of mass incarceration and the overwhelmingly disproportionate imprisonment of racial and ethnic minorities. As McKim (2017: 4) notes, addiction treatment is increasingly presented as the alternative to the often vindictive (and rarely therapeutic) incarceration of drug users, a truce, more or less, for the end of the War on Drugs itself. Nevertheless, it is worth noting that such alternatives are unevenly distributed, with Black Americans facing 6-10 times increased chance of incarceration for drug-related offences than White Americans, despite no significant differences between the two groups in terms of likelihood to use illicit substances (Netherland & Hansen 2016: 217). This political—and certainly financial too—investment in the promises that addiction treatment has to offer constitutes another obstacle in the effort to critically review the dominant model of addiction recovery. When users, professionals and policy-makers are presented with either imprisonment or 'rehab', the choice of the latter seems obvious, even at times when this choice is accompanied by a recognition that there still are problematic areas in addiction treatment.

The question of addiction recovery becomes even more complicated when one considers the multiple and different treatment options that vary in terms of duration, availability, and effectiveness. From pharmacotherapy to individual counselling, and from psychotherapy to mutual-help groups, addiction treatment exhibits an impressive range of professional and peer support options which are usually offered in combination. Yet, addiction continues to be one of the most pernicious psychosocial problems of our times. In previous chapters of the present dissertation, I defended the idea that addiction should be understood as a relationship of the individual with certain technical artefacts that is reinforced by an environment fraught with

consumerist ideals. In this environment addictive relationships become the predominant form of relating, to the point where society itself 'becomes an addict', a phrase used by the 1980s addiction expert Anne Wilson Schaef (1988: xi) to articulate the pervasive influence of addictions in people's lives and their communities. The 'addictification of society' (Loose 2015: 165) is followed by a proliferation of self-help groups following, sometimes loosely, sometimes rigorously, the principles of the twelve steps of Alcoholics Anonymous. These groups are not exclusively preoccupied with substance addictions and they are often focused on behavioural addictions and other pathological behaviours. Eve Kosofsky Sedgwick (1993: 133) presciently understood this growing wave of AA-based collectives as an indication that more and more people are actively looking for advice on how to control and overcome the breakdown of free will in a milieu that constantly undermines it with the consumerist commodification of substances, behaviours and affects.

In claiming that the only partial effectiveness of addiction treatments could be associated with the fact that addiction as an experience in contemporary society is so prevalent that systems of care are overwhelmed by its sheer numbers, I do not imply that the contemporary state of addiction treatment can be attributed only to a problem of availability of services, though this nonetheless remains a real concern. Indeed, the UK-based Royal College of Psychiatrists (2020) warned in September 2020 that the post-COVID 19-pandemic increases in alcohol and opiates consumption will be met with inadequate addiction services as a result of decades of spending cuts. Suggesting that addictions are so pervasive that current addiction treatments are simply inadequate to battle the problem should be followed by a consideration of the possible shortcomings of the addiction treatment paradigm. In this and the next chapter, I would like to investigate the idea that addiction treatments, despite their increasing variety and complexity, fail to effectively address the proliferation of addictions, partly because they are guided by the same systemic principles that lead to addiction. More specifically, I intend to provide an informed critique of the dominant addiction treatment paradigm, one that is undoubtedly inspired by the 12-step method of AA, as it relates to the concepts of autonomy and automation. My aim is not to reject the existing addiction treatment practices altogether. This would arguably be disrespectful to the large number of people who have managed to overcome their addictions following the principles of 12-step programmes. Instead, I would like to propose that AA-based communities should embrace their social and political character and function as units of niche construction, transforming not only their members' addictive relationships with substances but the sociocultural milieu which gives birth to addiction in the first place.

Before I proceed in examining the historical and theoretical underpinnings of these programmes, I would like to investigate the complex relationship between autonomy and

automation in the experience of addiction. I consider this as a necessary step in approaching the principles of contemporary addiction treatments. This is because the question of autonomy in addiction touches upon the current diagnostic understanding of the phenomenon as well as the principles of therapeutic interventions designed to battle the problem. If addiction is a disorder of compulsion and overwhelming appetite for a certain stimulation of the nervous system, then it represents a partial or complete loss of personal autonomy, a psychological state of automation accompanied by a loss of agency. Following this argument, addiction treatment should presumably focus on restoring personal autonomy, establishing a process of recapacitation where the individual regains the ability to live a life not guided by the pursuit of addictive stimulation. From this perspective, it is worth considering whether contemporary programmes aiming at addiction recovery are attempts of dis-automation, a process where the technology of recovery is adopted to invent a different future, leading towards the restoration of autonomy or instead promote another kind of automation guided by the principles and practices of 12-step groups. I illuminate this tension by attempting a close reading of David Foster Wallace's novel *Infinite Jest*, where one can identify, in literary form, some of the most crucial paradoxes of AA-based addiction recovery as it relates to the questions of autonomy.

6.2. Is addiction a loss of autonomy?

In perhaps one of the most concise descriptions offered regarding the loss of autonomy observed in addiction, bioethicist Carl Elliot used a well-known metaphor saying that the addict: 'is no longer in full control of herself. She must go where her addiction leads her, because the addiction holds the leash' (Elliott 2002: 48). This formulation portrays in lyrical terms a fundamental characteristic of addiction which refers to the impaired agency of substance misusers, denoting a situation where the craving and consumption of the substance takes precedence over the other goals and dreams of the individual. Even though the ability of addicted people to make choices and modify their patterns of use (for example, intentionally withdrawing to decrease tolerance; Pickard & Ahmed 2017: 30) is being increasingly recognized, contemporary research seems to support the claim that the impairment or the loss of self-control (Baler & Volkow 2006: 562; Henden 2018: 46; Potenza 2007: 5) remains a cardinal element of addiction. This is far from a recent conceptualisation of addiction. Already from 1812, Benjamin Rush mentions the words of an alcoholic conveying the lengths that a person is willing to get in order to consume the desired substance: 'Were a keg of rum in one corner of a room, and were a cannon constantly discharging balls between me and it, I could not refrain from passing before that cannon, in order to get at the rum' (Rush 1812: 266).

People with serious addictions, unable to achieve abstinence or moderate use, are often described or describe themselves as eager to endanger job stability, personal relationships, and physical health so that they can satisfy their cravings. It is no coincidence that the definition of addiction by the World Health Organisation focuses on the same idea: the continued use 'despite adverse consequences' (WHO 2004: 12), with the impact of those being presumably strong enough to deter non-dependent individuals from further use. The same definition mentions explicitly that the 'user feels that habit is no longer under control' (WHO 2004: 12).

One of the most lyrical depictions of this state of mind, is found in Oscar Wilde's *The Picture of Dorian Gray* showing a prescient understanding that the problem of psychoactive substances touches upon questions of free will and self-control. His description of the addictive relationship between the user and the substance conveys brilliantly the loss of autonomy present in addiction:

> Men and women at such moments lose the freedom of their will. They move to their terrible end as automatons move. Choice is taken from them, and conscience is either killed, or, if it lives at all, lives but to give rebellion its fascination and disobedience its charm (Wilde 1891, ch. 16; cited in Holton & Berridge 2017: 153-4).

Following these insights, one can see why addiction is such an important territory for the development and transformation of what Mariana Valverde has termed 'the complex dialectic of personal freedom and control/self-control' (Valverde 1998: 5). The phenomenon of addiction presents itself as an arena where multiple forces and interests exert various levels of influence. Diverse actors such as the criminal justice system, international organisations, public health institutions, and professional associations are all implicated in different ways in the governance of addictive behaviours. In addiction, questions of autonomy and freedom that are in themselves complex and controversial become even more perplexing when arguments about personal choice, value-systems and political beliefs are taken into consideration. A question that provides an example of these complicated dynamics is: 'why should the government prohibit the use of highly addictive psychoactive substances in a free-market economy?' Things get even more complicated when one sees the contradictory policy with which governments prohibit the circulation and use of a certain group of opioids (i.e., heroin) mainly due to their lethal properties in cases of overdose episodes, while the consumption and selling of alcohol, a highly addictive and in the long term potentially fatal substance, are regulated under a public health agenda that is less punitive, relying heavily on ideas of personal responsibility and age restrictions. A similar dynamic is found in the regulation of tobacco products.

Given the political and moral implications of these concerns, it is no coincidence that problems of personal autonomy in addiction have attracted the interest of scholars in the field of bioethics. The literature on this matter can be broadly divided in two categories; it refers, firstly, to the phenomenological conceptualisation of the presence or the absence of autonomy in the addicted individual and, secondly, it considers the extent to which people with addiction problems should be under compulsory treatment. In this section, I will attempt to present the often-opposing arguments developed regarding those two important issues.

One line of argumentation regarding the question of autonomy in addiction is based on the definition of the latter as a disorder of limited or impaired self-control, caused by a compulsive urge to use psychoactive substances. The bioethicist Arthur Caplan's argument is the clearest version of this perspective: 'An addiction literally coerces behavior. An addict cannot be a fully free, autonomous agent precisely because they are caught up in the behavioral compulsion that is addiction' (Caplan 2008: 1919). According to this logic, if addiction is a condition of limited freedom because of the strength of a certain desire, then addicts cannot be considered autonomous. Caplan is careful enough to avoid confusing loss of autonomy with incompetence or lack of cognitive capacity. As he reminds us, people with addiction problems exhibit a sometimes-remarkable set of skills in order to procure, consume, hide and distribute psychoactive substances (Caplan 2008: 1919). However, he contends, the existence of competence is not a sufficient condition for the establishment of autonomy or self-determination, because the latter presupposes that the behaviour is not coerced.

Despite the popularity and plausibility of this view, one might still challenge the circularity of the main argument. The autonomy of the addicted individual might be considered as impaired only if addiction is defined according to a specific criterion that refers to loss of self-control, coercion, and compulsion. Nevertheless, one could argue that there are instances of addiction where the use is highly controlled and calculated, which defies the perception of addictive behaviour as uncontrollable and risky. Indeed, addictions to less dangerous substances such as caffeine seem to be the most prevalent types of dependence. Moreover, this perspective fails (or neglects) to explain how the transition from the non-autonomous state of addiction to the autonomous state of sobriety takes place. If addicts have lost autonomy because of their compulsive urges, how do they succeed in regaining their autonomy, as many of them actually do without any specialist treatment (Lee & Sher 2018: 38)? In order to consider the addicted individual as someone whose autonomy has been lost, impaired or compromised, one should attempt to approach the addictive experience as a whole (including the stages of developing, maintaining,

relapsing, and recovering from addiction), instead of relying on a limited definition of the phenomenon.

It is on similar grounds that two prominent bioethicists, Bennett Foddy and Julian Savulescu (2010), reject the idea that addictive behaviour takes place in a state of non-autonomous action. Their work is a fundamental contribution to the debate on autonomy and addiction and it is worthy of further elaboration in the present chapter. In their article titled 'A liberal account of addiction' (2010), Foddy and Savulescu critically oppose other views on this complex phenomenon. More specifically, they divide perspectives on addiction into three categories: a) the Disease view, b) the Willpower view, and c) the Lay view (Foddy & Savulescu 2010: 2). What they term 'Disease view' is in a sense equivalent to what I have discussed here as the 'Brain Disease Model of Addiction' (Courtwright 2010: 137). According to this view, chronic drug use provokes several adaptations in the neuromolecular structure and function of the brain which render addicted individuals powerless against their urges to use drugs, because the latter provide an immediate stimulation of the brain's reward pathways. Following this explanation, addiction should be understood as a non-voluntary, non-autonomous behaviour. As Foddy and Savulescu (2010: 3) claim, the main strength of this approach is the reliance on neuroscientific evidence, although as I showed in chapter 3 there are neuroscientists who challenge the way proponents of the BDMA interpret neurobiological research.

The second approach that they attempt to refute is the 'Willpower view'. This group of theories and hypotheses describe addiction as a battle for self-control with addiction being the result of a certain 'weakness of the will'. A common observation in addiction symptomatology refers to the contradictory state in which addicts express their regrets for using psychoactive substances and their persistent desire for abstinence, yet they end up succumbing to their compulsive urge, as it is reported in an article about the lived experience of addicted individuals (Hammer and others 2012: 725). If addicted individuals proceed in using while they claim to not want to, then they cannot be considered freely acting, autonomous individuals. This behaviour reflects, in the long term, the aforementioned pattern of addictive consumption in spite of negative consequences. Following this line of argumentation, the addict's will appears not to be strong enough to gain sobriety. Drawing from phenomenological account and self-reports (instead of neurobiological research), the 'Willpower view' describes addiction as involving a mainly non-voluntary process, as does the 'Disease view' (Foddy & Savulescu 2010: 2).

Opposed to both the 'Willpower view' and the 'Disease view' stands the 'Lay view' on addiction, which according to Foddy and Savulescu (2010: 3) is not discussed in the field's scientific literature. Proponents of the 'Lay view' perceive addicts as morally reprehensible individuals whose

quest for immediate gratification and pleasure-seeking lifestyle is the root cause of them developing an addiction. Posing the phenomenon as a problem of relentless hedonism renders therapeutic interventions inappropriate and advances punitive ones. Interestingly, Foddy and Savulescu (2010: 3) claim that, despite the unjustifiable normative prescriptions, the 'Lay view' is closer to the truth. While both the 'Disease view' and the 'Willpower view' consider addictive behaviours as largely non-voluntary and non-autonomous, the 'Lay view' approaches addicted individuals as autonomous agents, even though its proponents see addicts in explicitly negative terms as morally corrupt human beings.

Ultimately, if we believe Foddy and Savulescu (2010: 3), all these views are inaccurate and misguided, mainly due to the prevailing prejudice against pleasure-seeking behaviour in modern societies. They argue that substance use and abuse are considered by lay people and addiction professionals as 'a priori aberrant' (Foddy & Savulescu 2010: 3), which prevents an honest and accurate depiction of addictive behaviour. Although one might be able to identify conservative elements in discursive and institutional formations of contemporary societies, it is difficult to refute that glorification of pleasure and sensation-seeking is an increasingly dominant force in the era of postmodern capitalism. It seems that Foddy and Savulescu's diagnosis, lacking a critical awareness of the important impact of consumerism on the contemporary way of life, refers to an earlier stage in the history of the complex relationship between pleasure and culture. Nevertheless, it is against the background of the 'conservatism' of the three dominant views on addiction that they propose their 'liberal' account of the phenomenon.

The core argument by Foddy and Savulescu (2006: 11; 2010: 1) is that substance use might seem harmful or irrational according to most people, however there is insufficient evidence to suggest that addicts are non-autonomous agents, unable to choose otherwise. From this perspective, the 'liberal' account of addiction considers, or 'presumes', that addicts act autonomously. In their recapitulation of the main thesis, they adopt an agnostic approach claiming that it is impossible to know if addicted individuals consider anything more valuable other than the gratification of addictive urges and whether using drugs is an autonomous behaviour (Foddy & Savulescu 2010: 14). Instead, what they claim to be sure about is that 'addictive desires are just strong, regular appetitive desires' (Foddy & Savulescu 2010: 14).

The classification of addictive urges as merely another case of 'strong appetitive desires' (such as craving for a palatable food; Foddy and Sabulescu 2010: 4) attempts to reposition drug use and its appeal as nothing more exotic than ordinary instances of incentive salience. Moreover, it follows the refutation of the main argument articulated by proponents of the 'Disease view' that chronic substance abuse produces profound adaptations in the brain's reward pathways, a property

which renders psychoactive substances extremely addictive. Citing research on the interaction of non-drug reinforcers (sugar, palatable food, and sex) with the mesolimbic dopamine system, Foddy and Savulescu (2010: 5) claim that neurochemical processes observed in drug addiction are not necessarily different from those found in non-drug-related addictions. They also endorse Perring's view (2002: 51) that consumption of drugs mostly stimulates the 'reward' pathways of the brain and not the neural mechanisms of planning and executive function, which would indicate complete control of the drug-seeking process by the chronic drug use (Foddy & Savulescu 2010: 2).

In these terms, the notion that drugs and alcohol 'hijack' the normal motivational mechanisms in a manner unprecedented in other forms of rewarding stimulation is rejected. Instead, drug and alcohol addiction should be understood as cases of experiential learning and habit formation. A similar argument constituted the basis for rejecting the BDMA in the book *The Biology of Desire: Why Addiction Is Not a Disease* (2015) written by the neuroscientist Marc Lewis, examined in chapter 3. According to Lewis (2015: 42), changes observed in the brain after the use of substances happen because intoxication belongs to a range of experiences with important motivational 'weight' which produce a specific pattern of cell 'firing', eventually transforming synaptic configurations. It is the element of repetition and salience that leads the process of habit formation in the brain and not the substance or the activity associated with it. Therefore, any repetitive and reinforcing behaviour can lead to the changes in the brain that proponents of the disease model attribute to substance abuse.

An underlying principle of the arguments put forth by Foddy and Savulescu (2010: 6) and Lewis (2015: 26) is that addiction cannot be considered a 'disease' if the criterion is the presence of extensive adaptations in the brain, since such changes can be identified in any process that involves a rewarding outcome. If one followed this criterion, the concept of 'disease' would be rendered useless, as every pursuit that produces brain adaptations would be considered a cause of neuropathology. Consequently, everyone can be considered as suffering from one or multiple addictions. Perhaps one of the most prescient insights by Foddy and Savulescu (2010: 6) is that 'the bright line we so often draw between drug addiction and habitual behavior is imaginary'. What they fail to consider, however, is the reverse interpretation of this observation, namely that substance addiction could be only a dramatic and extreme version of a generalized addictification of society. In other words, their 'liberal' account of addiction does not theorise the psychological impact that a socioeconomic system founded on the manufacturing and selling of addictions (Moore 2018: 200–202) can have in the process of habit formation. Kennett and others (2013: 3) observe that the 'Liberal view' of addiction follows the same conclusions that are reached by the models of 'addiction as a choice', to the point where one could suggest that the limitations of the

'Liberal view' originate from the same problematic premises of the choice models, which perceive individuals as rational agents who aim to maximise their pleasure, and thus fail to consider the complex relationship between substance abuse, pain relief, trauma and sociohistorical attitudes on immediate gratification.

I have examined so far how Foddy and Savulescu (2010) refute what they consider the three main theories of addiction. However, it is important to consider how they proceed in their conceptual work of analysing autonomy itself in addictive behaviour. Following Mackenzie's and Stoljar's work (2000: 13), Foddy and Savulescu (2010: 7–8) suggest that accounts of autonomy largely belong to two categories: firstly, the procedural accounts of autonomy and, secondly, the substantive accounts of autonomy. The crucial distinction refers to the origins and content of the individual's preferences. Procedural accounts are also called content-neutral accounts (Mackenzie & Stoljar 2000: 13) because the content of the individual's desires and values does not determine the status of their autonomy. The criterion of whether an agent is autonomous refers to their capacity to reflect from a critical standpoint regarding their motivations and actions (Mackenzie & Stoljar 2000: 14). In a sense, as long as an individual has reflected about their wishes and preferences, they can be considered autonomous independently from what these are. On the contrary, substantive accounts of autonomy reject the idea that one can be considered autonomous without examining the content of their wishes, desires, values, and preferences. Instead, the substantive accounts indicate that autonomous agents' decisions and actions should follow some normative criteria of what is right and what is wrong (Mackenzie & Stoljar 2000: 19).

Foddy and Savulescu (2010: 8) seem to consider that substantive accounts of autonomy are not useful for a theorisation of addictive behaviour, since they fail to differentiate addictive urges from general weakness of the will. According to substantive accounts of autonomy, individuals can be understood as acting non-autonomously when they surrender to an urge which they should not. This might be exactly what is observed in addiction, but it is also what one sees in ordinary cases of people behaving not according to normative values; when they, for example, watch TV instead of reading a book or when they eat a large quantity of some palatable food contrary to their doctor's advice. An account of autonomy which ends up determining almost every agent as non-autonomous becomes too general and, thus, loses explanatory power.

Consequently, Foddy and Savulescu (2010: 8) claim that 'any plausible account that holds that addiction is a disease that undermines autonomy—that is, any plausible version of the Disease View—will have to advance a procedural model of autonomy'. Such accounts consider addiction without *a priori* judgments about the morality of the will or desire to consume psychoactive substances. As mentioned, the significant factor refers to the critical reflection on the part of the

individual regarding their desires and preferences. One important account of autonomy from a procedural point of view, and the one that Foddy and Savulescu (2010: 10) examine, is the account proposed by Harry Frankfurt in his article 'Freedom of the will and the concept of the person' (1971: 5).

Frankfurt (1971: 7) contends that a distinctive feature of humanity is the capacity to formulate what he terms 'second order desires'. While other animals can have 'first order desires' (Frankfurt 1971: 6), which are desires to proceed or not proceed towards a particular action, it is only human beings who have desires that refer to the 'first order desires', meaning that they have a desire towards having or not having a specific desire. Following this distinction, an example of non-autonomous action is when there is incompatibility between a 'first order desire' and a 'second order desire': for example, in cases when someone acts according to a desire that they do not consider acceptable. Foddy and Savulescu (2010: 8) claim that, from Frankfurt's point of view, loss of autonomy in addiction could be observed when the addicted individual proceeds in using substances without endorsing their use. Nevertheless, this cannot be applied to all cases of addiction because there are individuals who define themselves as addicts but still fully embrace their addictive urges and do not consider them as inappropriate or regrettable. Adopting the perspective proposed from Frankfurt (1971), these cases of addiction do not imply a loss of autonomy: 'first order desires' and 'second order desires' do not contradict each other. The addict might be facing adverse consequences for their substance misuse, but they cannot be perceived as non-autonomous. At the same time, one could argue that they might be deluded about their autonomy.

Regarding the first group of cases of addiction which could be understood as cases of lost or compromised autonomy following Frankfurt's (1971) account, Foddy's and Savulescu's (2010: 14) response stems from the same logic of non-distinction between strong appetites and addictive urges. As they suggest, when the individual who abuses substances is 'regretful' (Foddy & Savulescu 2010: 8), they might be considered non-autonomous but this would imply what they define as 'an ideal conception of autonomy'. On various occasions, Foddy's and Savulescu's (2010) reader will encounter the argument that addictive urges cannot be distinguished 'from ordinary cases of weakness of will' (p. 8) and 'from the everyday limitations on a person's ability to choose' (p. 14).

It seems that an essential element of the discussion about autonomy and addiction is the question of whether the value of sobriety and general health takes precedence over the value of intoxicated pleasure. Foddy and Savulescu (2010: 14) claim that understanding the preference of wish-fulfilment over the preservation of health or even life falls into the trap of 'making

unwarranted assumptions about a person's ordering of values.' This conception of autonomy belongs to a 'substantive' account while, according to Foddy and Savulescu, only 'procedural' accounts of autonomy—free from the 'normative biases' that characterize substantive accounts—are suitable for properly describing addictive behaviours.

Despite the interesting points made by Foddy and Savulescu regarding the conceptual and empirical problems faced by the view that considers addiction as an outcome of overwhelming compulsion, it is important to note that their mainly agnostic approach has its limitations. First, it fails to account for the multiple phenomenological reports of addicts who identify a split between their urge to consume the addictive substance or any addictive pursuit and their desire to abstain in the face of numerous harmful consequences of their behaviour. Foddy and Savulescu might be right in diagnosing some paternalistic elements in how dominant views consider the relationship between pleasure and addiction. An approach, nevertheless, which ignores or sees as misguided the experiences of the addicted individuals is no less liable to the charge of paternalism. Secondly, their account seems more appropriate for only a specific group of addicts, those that do not express any regrets about their behaviour. Thirdly, their 'hedonistic' understanding of addictive behaviour, as an activity oriented around pleasure, adopts a limited perspective on how the feeling of pleasure is experienced across different people and in different stages of the addictive process. Research shows that feelings of pleasure associated with substance use are evaluated differently by addicted individuals, largely depending on whether the main motivation to consume the substance is for its initial euphoric effects or to prevent withdrawal (Kennett and others 2013: 2). Also, one might need to consider whether different substances cause different experiences of pleasure, even if we know that the brain mechanisms implicated in these processes are more or less identical across most addictions (Leeman & Potenza 2013: 268). Fourthly, and perhaps most importantly, it claims no interest in identifying any therapeutic strategy for challenging addiction. In spite of their own limitations, the three views on addiction that Foddy and Savulescu attempt to deconstruct (the 'Disease view', the 'Weakness of the will view' and even the 'Lay view' which remains entirely punitive) express in different ways an idea of what constitutes recovery. The 'Liberal account of addiction' does not investigate any such possibility, apart from a consistent appeal in de-stigmatizing addictive behaviour.

Regarding the last point of my criticism, it might be worth considering the work of the philosopher Neil Levy (2006a; 2006b). While investigating the same questions about autonomy and addiction as Foddy and Savulescu, Levy (2006b) seems to reach different conclusions with further repercussions about the appropriate therapeutic strategy. At the basis of Levy's argument is an alignment with Foddy and Savulescu's opposition to the view that sees addiction as

compulsion. As he writes: 'Foddy and Savulescu are certainly right that the addiction-as-compulsion view is false: the evidence is overwhelming that addicts retain a great deal of scope for choice and action' (Levy 2006a: 16). Nevertheless, he claims that Foddy and Savulescu 'go too far' (Levy 2006a: 16) in suggesting that addicts can be entirely autonomous while consuming psychoactive substances and that one cannot know whether addiction compromises autonomy anymore that regular appetitive desires. Instead, Levy (2006a: 16; 2006b: 427) contends that there is an impairment of autonomy in addiction, but the addicted individual retains a certain level of agency.

Interestingly, Levy follows a different account of autonomy in order to understand the relationship between addictive behaviour, self-control and will. He claims that the concept of autonomy that he uses refers to the 'exercise of the capacity for extended agency' (Levy 2006b: 427). Based on the work of Michael Bratman (2000: 43) and the empirical research of George Ainslie (2000: 94), Levy (2006b: 441) attempts to combine the former's ideas regarding 'temporally extended agency' and the latter's experiments on choice and addiction in order to promote an understanding of the phenomenon as involving making choices across time. Every living organism is involved in processes that require making certain decisions over others and this applies especially to human beings. Often, these decisions include ignoring a course of action attractive in the short term for the benefit of a more attractive option in the long term. For example, one might prefer to avoid eating a highly palatable food that is offered immediately so that they can enjoy a healthier body in the long term. The problem with addiction is that sometimes addicted individuals prefer to consume a substance that is readily available or is deemed highly desirable, ignoring the long-term consequences of such a decision. Levy (2006b: 440) admits the phenomenon of future discounting or temporal discounting (that is, the reduced value of future rewards, Critchfield & Kollins 2001: 102) is not observed only in cases of addicted individuals. However, as people grow older their discounting rates drop to a certain level that indicates an appreciation of future rewards *vis a vis* immediate gratification. In cases of addiction, individuals tend to continue the hyberbolic discounting of future rewards, although they might think that it would be better if they did not. Thus, addiction impairs autonomy in the sense that 'addicts are unable effectively to exert their will across time' (Levy 2006b: 440) which amounts to a failure in self-unification, the process of negotiating between the different desires of the individual and establishing self-control. In other words, there is a mismatch between the general preferences of the acting agent, the preferences regarding the best course of action in a specific time and the actual form of action that takes place in this specific time. Addicted individuals might generally prefer a non-addictive lifestyle and, when they see the substance or the cues associated with it at a specific time, they might prefer abstaining,

but eventually they indulge in consuming the substance. In these cases, addiction undermines autonomy by impairing the ability of the individual to exert control over their urges for a sustained period of time. This suggestion, understandably, assumes that the lifestyle of an addicted individual is undesirable. However, as the classic work of Preble and Casey (1969: 2) shows, it is entirely possible that the adventurous, unpredictable and energetic lifestyle of addiction—in their case, the life of heroin users in New York during the 1960s—is inherently rewarding. Indeed, as they claim: 'the quest for heroin is the quest for a meaningful life' (Preble & Casey 1969: 3) and this meaning is to be found in the gratification achieved by the accomplishments of difficult and dangerous tasks in order to maintain this lifestyle.

As Levy (2006a: 18) notes, the paradoxical situation in which addicted individuals retain the capacity of making choices but at the same time find it extremely difficult to abstain from the addictive substance/activity requires an explanation. Which mechanisms could be implicated in the process of resisting a temptation or surrendering to an urge? In order to approach this question, Levy (2006a: 19) draws upon the studies of the phenomenon of ego depletion (Baumeister 2002: 129). These studies attempt to examine the processes involved in self-control, understood as the group of mental states directed towards behaviour modification with specific focus on inhibition against impulses and urges (Baumeister 2002: 129). The general structure of the experiments involves two groups of participants, with one given the task of exercising self-control and the other a task which does not require self-control. Then both groups participate in a task that requires resisting a temptation or persisting in a seemingly pointless task. In one of these studies (Baumeister and others 1998: 1254), the first group was directed to skip a meal and eat from a bowl of radishes instead of chocolates and cookies, while the control group was divided to a subgroup that was allowed to eat chocolates and cookies and a subgroup which was guided directly to the problem-solving task (a puzzle) that all groups had to undergo in the end. The experiment showed that participants of the first group that had to exercise self-control and not eat the palatable food gave up sooner in solving the puzzle than the individuals of the other two subgroups (Baumeister and others 1998: 1255). According to Baumeister (2002: 131), this and other similar experiments indicate that self-control is a limited resource, and attempting to resist temptation leads to its depletion. In other words, the individuals of the first group spent a large amount of the self-control 'reserves' in resisting the temptation to eat a compelling food item, and when they had to exercise even more self-control by not giving up to a tiring task, they surrendered more easily than the group which did not spend any self-control resources. It seems that a good analogy to understand this process of self-control is to consider how muscles get tired after executing certain demanding tasks and they need rest in order to avoid exhaustion (Baumeister 2002: 132). Self-

control, like a muscle, after a certain level of 'mental exercise' requires a resting period otherwise its resources are depleted and the individual surrenders to the urge or gives up a copious task. Furthermore, similar to muscles, the long-term exercise of self-control increases the stamina and strength of the processes involved, with the individual becoming more capable of resisting a temptation and less vulnerable to impulsive action (Baumeister 2002: 132).

With this research in mind, Levy (2006a: 18) attempts to understand the impairment of autonomy seen in addiction focusing on the temporal dimension of the problem. Addictive urges are easier to resist in the short term but in the long term, if they are persistent enough, they can become overwhelming. Therefore, the individual fails to exhibit temporally extended agency over their preferences and actions because the duration and intensity of the temptation depletes the self-control resources. In a recursive scheme, initially exercising considerable effort to resist the temptation makes similar consequent efforts less and less effective, with the individual often giving in and thus providing some rest to the self-control system. It has been speculated that behaviours of surrendering to an urge can be interpreted as an attempt of the self to conserve the self-control resources (Baumeister 2002: 134), a process which is value-sensitive. If a task at hand is considered very important, there is higher probability that the individual will exert themselves and take more time to give in to the temptation. Instead, if the challenge is not judged as important, people will attempt to preserve their self-control resources by giving in sooner.

How would Levy address the claim by Foddy and Savulescu (2010: 14) that addictive desires are simply another instance of regular appetitive desires? Is there any difference between the addictive urges felt, for example, by a heroin addict and the ordinary temptations experienced by all of us? According to Levy (2006a: 20), the ego-depletion hypothesis indicates that the best strategy to resist a persistent desire is to divert the attention from the temptation and/or the cues associated with it. In cases of addiction, however, there is increased cue-sensitivity which means that cues associated with addictive substances or activities capture the attention of the individual undermining their agency and inducing relapse (Carter & Tiffany 1999: 327). As Bernheim and Rangel (2004: 1559) put it, it is possible that, when exposed to related environmental cues and in relationship to past experiences, the agent enters a 'hot' decision-making process which leads them to consume the substance 'irrespective of underlying preferences.'

The explanation that Levy offers regarding the impairment of autonomy also leads to a specific direction for the process of recovery. From his point of view (Levy 2006a: 20), addicted individuals should attempt to control the environmental stimuli they perceive in order to avoid substance-related cues which undermine the efforts towards abstinence. Thus, it is important for people suffering from addiction to, firstly, try to avoid these cues (people, places, and things) and,

secondly, to establish the necessary alternative coping mechanisms that would support self-control processes when these cues are encountered. It is in this spirit, one could guess, that a central component of self-help advice on resisting cravings refers to what is termed as the three Ds: Delay, Distract, Decide (Greater Manchester Mental Health NHS Foundation Trust n.d.: 21). This suggestion is based on the idea that if the individual does not act immediately when the craving is experienced and instead diverts their attention to another task, they might be able to resist the temptation and take a better decision on whether to use the substance or not.

Levy's (2006a; 2006b) approach to the question of autonomy and addiction appears to be more convincing than the approach adopted by Foddy and Savulescu (2010). His account can incorporate both the phenomenological reports describing addicted individuals as often using without wanting to and the well-documented fact that substance abuse can be price-sensitive (Roddy and others 2011: 358) and potency-sensitive (Goudie and others 2007: 107), allowing a certain degree of choice in a behaviour usually considered entirely compulsive. An important clarification regarding the self-reporting by addicts of irresistible urges and the inability to abstain is that, contrary to this behaviour, one often sees addicts claiming that they exert total control over their consumption (Levy 2006a: 17) with phrases like 'I can quit whenever I want'. This behaviour was conceptualised in Gregory Bateson's famous essay titled *The Cybernetics of "Self": A Theory of Alcoholism* (1971: 8) as an instance of 'alcoholic pride', which constitutes an attitude that is detrimental for the recovery process.

The debates about autonomy and addiction indicate that unqualified claims about the ways free will, responsibility and rationality are impacted by the phenomenon cannot stand up to scrutiny. Empirical research and theoretical arguments suggest that addictive urges can be experienced as overwhelming and, at the same time, permit the execution of rational thinking and planning, especially for the procuring of the substance. Addiction can undermine autonomy without totally depriving the individual of agency. The addicted individual might have a choice to avoid engaging in any addictive activity, but this does not exclude the possibility that the choices available to them are indeed constricted. As Johansen and others (2013: 546) put it: 'If the addicts experience *constrained choice*, for example, by lacking trusting, supportive social relationships, they lack opportunities for alternative means of validation and support. Thus, they cannot be said to be fully autonomous, even if they think rationally'. It is significant, then, to consider the question of addiction treatment recognising that impairment of autonomy can co-exist with rational thinking and action. In the next section, we will see how arguments about the autonomy of addicted individuals inform the discussion about compulsory or forced treatment.

6.3. Autonomy and compulsory treatment

As mentioned at the beginning of this chapter, the concept of autonomy is usually discussed in the addiction literature with regard to compulsory or mandatory treatment, a term which refers to 'any form of drug treatment that is ordered, motivated, or supervised by the criminal justice system' (Lunze and others 2016: 2). It is perhaps one of the great paradoxes of mental health care systems all around the world that an important component of the relevant services overrules the 'right to refuse treatment' which constitutes a fundamental principle in Western medical ethics. While a patient diagnosed with a life-threatening disease can always decline medical care, an individual who is legally mandated to receive treatment under the Mental Health Act or a Drug Rehabilitation Requirement (in the UK, for example) cannot refuse treatment. This discrepancy between addiction treatment programs and other types of healthcare provision, appears even more contradictory given the myriad ways in which the problem of addiction is often framed as 'enslavement', 'tyranny' and lack of 'freedom'. Addiction specialist William White (2008: 1) has noted that treatment facilities in general often provide a limited number of choices to their service users, due to the perception that people who need addiction treatment are framed as individuals who are incapable of making choices: 'the state of addiction' as the 'very antithesis of choice'. From such a point of view, one can see how peculiar it might seem to use a restrictive therapeutic option for a pathology commonly associated with coercion and compulsion. Interestingly, compulsory treatment is usually seen as the benevolent alternative to the more punitive option of incarceration for drug-related offenses.

Scholars in bioethics have attempted to solve this conundrum by focusing on the concept of autonomy. The most important contribution to this debate has been offered by Art Caplan (2006; 2008). Caplan (2008: 1919) recognizes that compulsory treatment for addiction does not abide by the essential right 'to refuse care' that informs bioethical considerations of healthcare provision. He claims that justification of compulsory treatment could be based on two grounds: the benefit that such a treatment programme could have for society as a whole, and the benefit for the individual who undergoes the treatment. Regarding the first argument, Caplan (2008: 1919) indicates that it is very improbable that in countries like the USA mandatory or forced treatment could ever be endorsed following a reasoning that puts forth the greater good. The benefit of the individual, however, could be used to justify as ethical the option of compulsory treatment if the concept of autonomy is employed.

Caplan's strategy is to create a distinction between short-term and long-term autonomy. He suggests that if compulsory treatment provides the ground for recovery from addiction, then

it can be considered a process of creating or restoring the autonomy of the individual (Caplan 2006: 119). If addiction is a disorder of compulsion, as Caplan (2008: 1919) seems to believe, then the individual has lost autonomy, therefore a further infringement of autonomy in the form of forced treatment can be justified if it promises the regaining of long-term autonomy (Caplan 2008: 1920).

The complex dialectic of freedom and coercion in the experience of addiction and its treatment can be detected in problematizations of the phenomenon from historical periods other than our own. Mariana Valverde (1998: 16) recounts the words of Dr James Bovell, a Toronto-based theologian and physician, who in 1862 was defending the compulsory admission to state-owned inebriate asylums putting forth a similar argument with that of Caplan. More specifically, Bovell (1862: 33; cited in Valverde 1998: 16) considered the alcoholic as the 'slave of intemperance' whose will was 'enslaved under the dominion of desire.' Therefore, the authorities have a legitimate reason to coerce treatment upon the addicted individual, a process conceptualised as an attempt to 'remove him [*sic*] from the dominion of passion.' The long thread that connects the apologetics of compulsory treatment from a 19th-century professor of theology to a 21st-century bioethicist indicates the complicated and often-ignored history of contemporary discourses on addiction and recovery. What might seem as an original take on human rights, individual liberties and interests could actually be the latest stage of a rhetoric traceable in a very specific sociohistorical context.

Caplan's argument is not without its critics. An important concern refers to the danger of discrimination against people suffering from addiction. If patients with other diseases/disorders have the right to refuse care, it is not clear why people with addiction problems should succumb to involuntary treatment (Chase 2020: 8). Having Caplan in mind, Chase (2020: 8) suggests that compulsory treatment, in order to be justified, should be evidence-based. More specifically, she claims that the endorsement of intrusive methods needs to be supported by evidence that indicate their safety, effectiveness, and advantage over other options. Following this principle, she introduces four criteria in order to consider the ethical content of a treatment option: a) the option needs to be effective, b) it is the least restrictive method to achieve the same outcome, c) it does not cause more harm, and d) it does not discriminate (Chase 2020: 8-9).

Unfortunately, there seems to be a dearth of evidence regarding the effectiveness of compulsory drug treatment. According to a systematic review published a few years ago, it seems that available research does not report positive outcomes of forced treatment and some studies indicate the possibility of harm (Werb and others 2016: 7). The same authors promote the use of non-compulsory treatment approaches considering that forced treatment environments might be a fertile ground for human rights violations. A significant factor in determining whether an

individual will benefit from a compulsory treatment approach refers, paradoxically, to the level of their participation in their recovery (Chase 2020: 10). Being admitted to a relevant service could facilitate a process of medically supervised detoxification and provide the opportunity to commence therapy (in individual and group-setting), to participate in mutual-help groups and receive treatment for other mental health concerns (Chase 2020: 10). However, if the service user is unwilling to actively engage in their own recovery, then the addiction professionals will probably struggle to effect long-lasting therapeutic change.

As one would expect, Foddy and Savulescu consider compulsory treatment a 'paternalistic intervention' which could be justified according to other principles, but not based on an understanding of addiction as a loss of autonomy. Indeed, according to them such approaches are infringing the autonomy of the individuals, which they supposedly aim to restore. As they forcefully argue (Foddy & Savulescu 2010: 16): 'The fiction that an addict ought to be treated against her will—because the addiction is proof of lost autonomy—must be abandoned.'

Other bioethicists (Sjöstrand and others 2013: 716) have demonstrated how fundamental the concept of authenticity appears to be in the debates regarding autonomy and compulsory treatment. In other words, it is important to consider to what extent the desire to consume psychoactive substances is an 'authentic' expression of a person's will or simply a manipulated, by previous experiences and a culture of immediate gratification, urge to alter a mental state. Equally, one could wonder whether a successful recovery process should be based on an 'authentic' willingness to live an addiction-free life, a requirement that would render mandatory treatments less appealing to policy makers since they are by definition rarely aligned to the 'authentic' will of the service user. If compulsory treatment was indeed aligned with the will of the addicted individuals, they would probably have already considered less restrictive options.

6.4. What the bioethics of addiction has missed

Bioethical investigations of the phenomenon of addiction provide interesting insights that are important in addressing some of the major questions that still trouble both researchers and clinicians. Although the perspectives I discussed in this chapter are by no means the only bioethical arguments put forth with regard to addiction, they attempt to approach philosophical problems that are simultaneously very old (concepts such as willpower), but also touch upon contemporary controversies. I mentioned earlier in this chapter that Foddy and Savulescu's account fails to consider historical shifts on how the relationship of pleasure and autonomy has been transformed in the second half of the 20th century. Consequently, they do not address the impact of

consumerism as an economic operational principle but also as a mode of existence in the proliferation of addictions (substance and non-substance related). However, the most striking omission is the neglect of a fundamental question in any problematisation of addiction, that of substances as technical artefacts. Otherwise put, Foddy and Savulescu neglect to consider the question: 'what do addictive substances/activities "do"?' I use the word 'striking' because bioethics is one the most prolific disciplines in examining the impact and the implications of technological innovations for the moral/ethical aspects of contemporary life. Yet, in bioethical approaches to addiction, the technological dimension is forgotten.

Adopting a technological perspective allows us to consider the question of autonomy in addiction and in recovery from a different point of view, one that challenges the premise that autonomy is an easily attainable state of being undermined in cases of addiction and other pathologies. Bernard Stiegler presciently understood that autonomy and automation should be conceptualised as composing each other rather than in oppositional terms (NAM: 241). The co-constitution of humanity and technics implies that our autonomy is always fragile, constantly conditioned by the heteronomous dependence on technical artefacts. Technics creates possibilities of autonomy, in the sense of facilitating the freedom from limitations of our biology and psychology, however, this autonomy relies on something that is inherently pharmacological, always susceptible to become toxic and unsustainable. As Stiegler puts it: 'autonomy is always and precisely constituted as the internalization of heteronomic artifactuality' (NAM: 242). Psychotropic substances present a clear example of this ambiguity, as they can increase our autonomy in withstanding the perturbations of the environment—a function that the bioethical arguments I discussed in this chapter fail to take into account—but, in the long term, can undermine it entangling the addicted individual into a particular lifestyle based on maintaining the addictive behaviour. The fragility of autonomy implies that cultivating it should not be understood as the task of a certain individual or a therapeutic institution. Perhaps, the greatest limitation of approaches similar to those of Foddy and Savulescu is that they conceive questions of autonomy in individualist terms. Yet, a technological understanding of addiction indicates that we cannot think of individual autonomy without engaging with questions of social autonomy.

6.5. Conclusions

Although the legitimacy of mandatory drug treatment seems to have dominated the debates on the autonomy of the addicted individual, it is important to remind ourselves that the related questions are relevant for other forms of treatment. The philosophical principles that underpin

the diagnostic and therapeutic apparatuses of addiction researchers, practitioners, and advocates, with a particular emphasis on the claims made regarding the subjectivity of the addict, are fundamental in determining the options to be offered, the tools to be used, and the outcomes to be evaluated. If the addict is considered a person with impaired autonomy, then the question of recovery should involve a quest for partly or fully regaining personal autonomy. If addiction is understood as a condition where individuals make choices that are generally disapproved of, but still remain autonomous, then recovery could focus on facilitating a transition towards healthier choices without implying that addicts have lost control.

The centrality of how one approaches the nature, extent and implications of autonomy in the experience of addiction makes ever more necessary an examination of the most dominant paradigm in the treatment of various forms of addictive behaviours, that is, the principles of battling addiction formulated by the Alcoholics Anonymous. The pervasive influence of the AA paradigm in the available approaches of treating addictions at a global level and the significant cultural impact it has had in how Western societies understand the problem indicate the necessity of engaging with the history and philosophy of this movement. Furthermore, the deep interest that AA has for concepts surrounding personal autonomy (such as the weakness of the will, the question of control over one's behaviour and substance use, and, most importantly, the dialectic of thinking and choice) persuades us to dive into AA's complex theoretical and practical system.

Chapter 7: Alcoholics Anonymous

'It may be that Alcoholics Anonymous is a new form of human society.'

—Bill W. (1946).

7.1. Introduction

It is highly probable that when Rowland Hazard (1881–1945), a former Rhode Island state senator and wealthy businessman, entered the office of psychoanalyst Carl Jung in Zürich (Bluhm 2006: 317), he could never have imagined the long-term consequences of this encounter. A descendant from one of the most powerful and politically influential families of Rhode Island (Finlay 2000: 3), Hazard was struggling with his alcoholism. Being a cousin of Leonard Bacon, a poet who would win the Pulitzer Prize in 1940 (Blum 1941: 168) and a former analysand of Jung, Hazard thought that one of the most important psychiatrists of his era would be capable of treating his addiction (Bluhm 2006: 315). It is still unclear how long did Hazard's analysis last. Some scholars have claimed that it was more than a year (Finlay 2000: 3), while others indicate the possibility of it lasting much less (Bluhm 2006: 316). After this episode of treatment, Hazard relapsed by indulging in heavy drinking, either in late 1927 or early 1928 (White 2014: 170), an incident that prompted him to seek again the help of Jung. This time, however, the psychoanalyst was less optimistic. He told Hazard that there was nothing else that a medical or psychiatric intervention could offer him. Instead, he suggested that some alcoholics have recovered following a 'spiritual awakening' (White 2014: 170) or religious experience, noting that such cases are rare (Finlay 2000: 3).

Hazard persisted in his quest for professional help with multiple hospitalizations (White 2014: 170) while seeking ways to implement Jung's advice regarding religious conversion. His determination led him to a Christian movement named the 'Oxford Group' based both in England and the USA. The Oxford Group was a creation of Frank Buchman, a Lutheran minister from Pennsylvania who also, allegedly, had a spiritual transformation while being in England (Davidson 2002: 3). Following this experience, Buchman wrote letters of apology to the members of the Lutheran Ministerium of Pennsylvania and Adjacent States with whom he had quarrelled before his departure from the USA (Bufe 1998: 15), promoting 'making amends' as a necessary part of a spiritual awakening. It provides an interesting insight on the foundations of AA, as we will see later, that Buchman's movement emphasized the so-called 'four absolutes': absolute honesty, absolute purity, absolute unselfishness, and absolute love (White 2014: 170). Following these

ideals, the Oxford Group encouraged public confession, surrender to God, self-improvement, and repentance (Davidson 2002: 4).

Around the same time that Rowland Hazard became acquainted with the Oxford Group, another businessman, the investment banker Bill Wilson was seeing his alcoholism spiralling out of control (White 2014: 171). Despite his financial success during the years after World War I, a combination of his alcoholism and the 1929 Crash had left him an unemployed 39-year-old man, desperate for a cure (Alcoholics Anonymous 2001: 4). Wilson was a life-long friend of Ebby Thatcher who was also struggling with his alcohol consumption. At a certain point, Thatcher was about to be admitted to a psychiatric institution unable to manage his addiction (White 2014: 171). This is when Rowland Hazard, now a member of the Oxford Group and an old friend of his, decided to intervene and he persuaded Thatcher to join the movement. Having early on become fascinated with the ideas and the vision of the Oxford Group, Thatcher first called and then visited Bill Wilson in November 1934 and attempted to bring him to an Oxford Group meeting, telling Wilson that 'God had done for him what he could not do for himself' (Alcoholics Anonymous 2001: 11). Wilson found Thatcher's idea interesting but remained sceptical of organised religion. However, a few days later Wilson had to be hospitalised in the Charles B. Towns Hospital in New York. It is there that one finds the mystical experience that is commonly associated with the birth of AA. He described this event, which he termed 'hot flash' in the book *Alcoholics Anonymous Comes of Age* (1957):

> My depression deepened unbearably and finally it seemed to me as though I were at the bottom of the pit. I still gagged badly on the notion of a Power greater than myself, but finally, just for the moment, the last vestige of my proud obstinacy was crushed. All at once I found myself crying out, 'If there is a God, let Him show Himself! I am ready to do anything, anything!
>
> Suddenly the room lit up with a great white light. I was caught up into an ecstasy which there are no words to describe. It seemed to me, in my mind's eye, that I was on a mountain and that a wind not of air but of spirit was blowing. And then it burst upon me that I was a free man. Slowly the ecstasy subsided. I lay on the bed, but now for a time I was in another world, a new world of consciousness. All about me and through me there was a wonderful feeling of Presence, and I thought to myself, 'So this is the God of the preachers!' (Alcoholics Anonymous 1957: 64).

Following this unusual spiritual 'awakening', Thatcher brought Wilson a copy of William James's book, titled *The Varieties of Religious Experience: A Study in Human Nature* (2003[1902]) (White 2014: 172). Wilson found fascinating the idea that 'emotional occasions, especially violent ones, are extremely potent in precipitating mental rearrangements' (James 2003[1902]: 157) and understood his experience as a demonstration of the hopeful message that a Higher Power can bring to a human being in times of despair and weakness. James's intellectual contribution to the AA has been examined by Finlay (2000: 9) who mentions that according to Wilson, the pragmatist philosopher can be considered a co-founder of the organisation. Indeed, James (2003[1902]: 172) recounted frequently conversion experiences of alcoholics and he quotes the saying of 'some medical man' that 'the only radical remedy I know for dipsomania is religiomania' (2003[1902]: 210).

Shortly after his hospitalization, Wilson resumed his business activities and found himself on the brink of relapse, experiencing irresistible urges to drink while staying at the Mayflower Hotel in Akron, Ohio in May 1935 (White 2014: 172). Desperate to avoid a repetition of his recent predicament, Wilson started calling friends from the Oxford Group and through a series of serendipitous 'referrals' he ended up meeting a certain Dr Robert Smith who was also struggling with this alcoholism while being a member of the local Oxford Group. Wilson and the man who would eventually be known in AA circles as 'Dr Bob', helped each other in achieving sobriety and decided to reach out to fellow alcoholics. Neither of them could have imagined the impact that their endeavour would have in the history of addiction treatment.

In this chapter, I attempt to explore the core ideas of the AA programme of addiction recovery. Drawing on AA's own texts and the extensive scholarship about the organisation, I argue that mutual-aid programmes, despite their differences, promote the formulation of a different relationship between the self, the psychotropic *pharmakon* and the community. This different relationship is based on adopting what Michel Foucault (1988: 16) termed 'technologies of the self', specific ethico-aesthetic practices, which in a sense, reverse the automation of the psychic apparatus caused by the addictogenic technical artefact, with creating another form of less-destructive automation that is established through the AA's techniques of recovery. However therapeutic these practices might be for certain individuals (see section 7.4. for a review of available evidence), AA's refusal to engage in questions of structural causes of addiction remains an important limitation of the otherwise transformative potential of these interesting, democratic and based on mutual-aid forms of addiction treatment. I showcase some aspects of the complex formulation of AA practices as techniques of recovery through a reading of David Foster Wallace's novel, *Infinite Jest* (1996). It is important to note that while I present the organisation as based on a

highly standardised and homogeneous set of rules and examples for the purpose of analysis, I am fully aware that in individual groups, certain rules and practices are constantly negotiated and re-elaborated (Keis and others 2016: 245).

I consider that the focus on AA is justified despite the extensive literature on this historical institution. This is firstly due to the remarkable influence that AA has had on other forms of addiction treatment, which were largely developed as a response to the methods and principles of the AA fellowship. Secondly, the philosophy of AA is particularly interesting in the way it explores an object of medicine and psychology with a spiritual perspective. The fact that this perspective is widely accepted by the practitioners of these disciplines, even though both medicine and psychology are often prone to 'scientism' and the exclusion of the 'spiritual' element is intriguing. Finally, contrary to the individualisation of personal distress promoted by contemporary health sciences, AA promotes a supra-individual organism as the unit of recovery.

7.2. The fundamental concepts of AA

The organisation they founded was built around the principles of voluntary participation and mutual-help and remained loosely associated with the Oxford Group (Williams & Mee-Lee 2019: 412). There was no provision for the involvement of professionals working on addiction. The basic organisational unit was the group which remained largely autonomous from other groups. Slowly and patiently the founding members started articulating their approach towards recovery (White 2014: 176). As AA became more and more detached from the Oxford Group this approach took the form of specific action-points:

> 1) We admitted we were powerless over alcohol. 2) We got honest with ourselves. 3) We got honest with another person, in confidence. 4) We made amends for harms done others. 5) We worked with other alcoholics without demand for prestige or money. 6) We prayed to God to help us to do these things as best we could (White 2014: 176).

It is evident that these suggestions draw heavily from the values of the Oxford Group regarding honesty, unselfishness, and surrender to God. Crucially, while preparing the publication of the book that would present the ideas of AA, the so-called 'Big Book', Bill Wilson used the term 'Power greater than ourselves' instead of 'God' in the second step and elaborated the six principles into the famous 12 steps towards recovery. This intellectual manoeuvre intended to open the space of AA for alcoholics who were more sceptical of the religious component of the programme. Mariana Valverde (1998: 29) has noted how the 12 steps were formed almost as 'an agenda for a

business meeting' with some members attempting to turn the 'Big Book' into an entirely Christian direction while others aimed towards a more 'psychological' work. The publication was the outcome of a compromise outlining the practical guidance that the first 100 members had accrued in the first 5 years of the organisation.

A central tenet of AA is that a person's recovery starts with the admission that the individual has lost control over alcohol, continues with regular attendance of the group meetings, and reaches a milestone when the alcoholic becomes capable of helping fellow drinkers in their recovery journey. Thus, participation in AA constitutes a programme of spiritual development which primarily aims at staying sober and helping others to stay sober. In 1946, the organisation introduced what they termed the 'Twelve Traditions' which were reflections on how the movement can grow and flourish (Blum and others 2015: 49). The text (Alcoholics Anonymous 2021[1946]: 187) was published for the first time in AA's magazine "Grapevine" and demands anonymity for the groups and the individual members, claims that AA has always an open invitation to every person who wants to stop drinking regardless of their background (p. 139), and dissuades from involvement in public controversies related with politics, religion or even alcohol reform (p. 195).

The organisation's principle of anonymity and its opposition to centralization, hierarchies, and the professionalization of the groups (Valverde 1998: 4) reminds one of some important tenets of anarchist thought, a connection investigated by contemporary American anarchist author Charles Bufe in his book *Alcoholics Anonymous: Cult or Cure?* (1998: 77). Although Bufe remains critical of AA, in terms of the programme's effectiveness (1998: 101) and the total disregard of the socioeconomic causes of addiction (1998: 83), he praises Wilson's provisions to avoid the creation of an oligarchical structure and to keep intact the democratic core of AA's operation. Afterall, the organisation is adamant about limiting the quest for property assets and other forms of income, except those that facilitate the running of each group, which are provided by individual contributions. It is this oscillation between individualism and group identity that gives the movement a special place in the history of similar endeavours in American society and elsewhere.

Bill Wilson was familiar with the ideas of Pyotr Kropotkin, the Russian anarchist whose work on mutual aid as a factor of evolution bears a resemblance to the peer support philosophy of AA. Kropotkin's opposition to Marxism and Nietzscheanism (Kinna 1995: 265) in political terms was accompanied by a sophisticated criticism of the reduction of evolutionary processes to the 'survival of the fittest'. Kropotkin (1902: 6) argued that relationships of mutual aid between organisms offer them more chances to survive and develop their potential. Opposing T.H. Huxley's reading of Darwin's theories, Kropotkin (1902: xiv) mentioned various examples of

mutually beneficial cooperation between animals, which led him to suggest that species progress as long as they maintain relationships of mutual aid and regress when conditions of life inhibit behaviours of cooperation. Kropotkin is mentioned by Bill Wilson in the book *Alcoholics Anonymous Comes of Age* (1957: 224), as the 'gentle Russian prince'. Describing the organisational philosophy of AA, Wilson emphasizes its voluntary character ('We cannot be *compelled* to do anything', emphasis in the original) and does not hesitate to frame it as a form of 'benign anarchy'. While he recognised that his readers would probably have associated anarchism with political violence ('one of its excitable adherents long ago threw bombs around in Chicago', p. 224–5), Wilson thought there was a 'benign' version of voluntary association of people in communities with a common interest, which is a defining characteristic of many self-help groups (Katz 1981: 150–151).

Addiction researcher, Robin Room (1993: 1) in his exploration of the AA movement identifies the peculiar development that the organisation exemplifies. More specifically, AA incarnates a certain pre-existing communitarian strand of US society with a simultaneous refusal to engage in any issue other than problematic drinking. One therefore sees in it the anomalous combination of an isolationist perspective towards anything unrelated to alcoholism and the powerful encouragement of mutual help and altruistic behaviour. It can be hypothesized that this isolationism was a strategic calculation on the part of the founders of AA, who had seen how detrimental it was for the 19th and early 20th century temperance and prohibitionist movements their involvement in debates on policy reform and political lobbying (Valverde 1998: 121). Despite the organisation's emphasis on the responsibility that individuals had for their addiction, according to Room (1993: 1), the AA program was a systematic attempt to dismantle the pathological illusions of 'egoistic individualism'. It is no coincidence that the movement was born after the Great Depression, a historical event that thrashed the particularly American version of the Protestant ideological doxa that hard work would eventually be rewarded with success and happiness (Room 1993: 10). The founding members of AA were mostly middle-aged men who struggled with a devastating addiction as well as an equally overwhelming crisis in their social and marital statuses. The recovery resources available in their cultural milieu indicated a quest for spiritual transformation and a disregard for possessive individualism It is interesting, however, how the organization managed to achieve this level of popularity during the period that followed the Great Depression which, until the mid-1970s, was an affluent era of capitalist acceleration. One could hypothesise that AA provided an alternative set of values to the consumerist orientation of the North American social and economic landscape. Following Moore's (2018) conceptualisation of capitalist economy as based on the extraction of dopamine ('dopamining'), it is worth considering the possibility that AA was an institution that offered other modes of stimulation

(through cultivating the social bond and constructing a spiritual community) which were opposed to the values of an addictogenic society.

An indication of how AA questioned, to a certain extent, the dominant ideas of American individualism was the organisation's antipathy towards pride and the illusions of 'big-shot-ism' (Room 1993: 10). In the 'Big Book' one reads stories about people who thought of themselves as the 'Big Shots' (Alcoholics Anonymous 2001: 224) and were subsequently crushed partly by their alcohol drinking, partly on account of their pride in refusing help (Alcoholics Anonymous 2001: 506). The recovery, then, constitutes a lifelong exercise in humility. The trajectory of the early female members of AA was quite different, as their alcoholism is usually associated with an alcoholic father or husband. It could be said that, from the point of view of AA, the ideal of self-sufficiency is very detrimental in addiction recovery. The impossibility of a self-sufficient recovery does not mean that, instead, a medical or psychological practitioner will do the hard 'labour' of recovery. Professionals can offer treatment options but, according to AA, the responsibility lies within the individual.

The virtue of humility is associated with the demand to surrender to a 'Higher Power'. This fundamental concept of AA is not only a quasi-religious attempt to shift the locus of control to an extra-individual plane. It is also a strategy to promote humility by indicating the limited power of the individual as placed between two uncontrollable forces: the force of alcohol and the force of a 'Higher Power'. The concept of the 'Higher power' is juxtaposed to an understanding of the self as 'powerless' which 'represents an opening up to the world and to help from others' (Keis and others 2016: 251). When alcoholics understand the measure of things, they can get rid of the 'alcoholic pride', the illusion of self-sufficiency that led to their alcoholism in the first place and allow the imaginary 'work' of the 'Higher Power' mask the real 'work' done by them and the group as they go through the recovery process. In what sense could this masking be beneficial? Firstly, it provides an ingenious solution to a well-known problem in addiction which can be summarized with the following question: How can someone who has tried unsuccessfully many times before to remain abstinent, finally avoid relapse and remain sober? The idea of a 'Higher Power' into addiction treatment functions as a discovery of an inexhaustible source of recovery reserves. The individual is no longer alone or unarmed against the 'Disease'. Secondly, masking the real work of recovery done by the individual and their group with the imaginary work of a 'Higher Power' makes the recovery journey less daunting, less overwhelming, and significantly, more possible.

Mariana Valverde (1998: 126) has noted how important the concept of 'working' the 12-step programme is in the AA culture. As she accurately observed, AA members, somewhat surprisingly, do not refer to their relationship with the 12-step method in terms of 'belief' but in

terms of 'work'. The recovering alcoholics is not expected to believe in the 12-steps but to make a serious attempt in actually transforming their relationship with the substance through putting into practice its guidance. Indeed, they might even consider ingenuine an attitude of simply believing in the 12-step programme without a clear proof of 'working' under its guidance. Nowhere is this clearer than the well-known slogan of AA: 'It works, if you work it', an indication that the effectiveness of the endeavour depends on the amount and consistency of effort the individual puts in executing the steps. Crucially, 'working' the programme means a series of activities: primarily attending the group meetings, praying and reading the 'Big Book'. No step is less important than the others and there is no room for selective endorsement of some steps over the others. The programme should be 'worked' as a whole, even though there is room for different interpretations of each step.

From this perspective, it is understandable why Gregory Bateson (1971) appreciated and promoted to such an extent the transformative potential of AA. Providing a sense of community and horizon of possibility, AA groups create a milieu for the individual in recovery. Bateson (1971) emphasized in particular that a constitutional moment of this transformation was a change in epistemology, in the sense that AA breaks the absolute separation of subject and object in Western metaphysics, which for Bateson implies that AA's world view is aligned with his own epistemology of cybernetics. The introduction of a 'Higher power' in the recovery process facilitates a transition to a more fluid understanding of the limits between the self and the world. This flexibility allows the individual to connect with other individuals that have been through similar experiences. Interestingly, for Bateson (1971: 1) the 'epistemology' of the 'alcoholic' is nothing but the 'epistemology' which is 'conventional in Occidental culture', which would mean that in the theology of AA he finds the sperm for a radical breakthrough with Western epistemology.

7.3. The AA programme and technologies of the self

A major misconception about AA, which is probably created by the organisation's monothematic interest in alcoholism, is that the programme simply constitutes a model of addiction treatment. While AA is certainly that too, their scope is much broader. The 12-step programme can be considered a concise protocol for the transformation of subjectivity in its entire existence. If sobriety was the only aim of the organisation, the 12 steps would be statements about how to avoid drinking and resisting temptations. Instead, they guide a rearrangement of the entire psychosocial life of the individual with specific demands regarding and regulating the belief system, the understanding of oneself, the conduct in personal relationships and the responsibility of carrying the message of the organisation. As Valverde puts it:

> It is the soul of the member that is the main object of AA's innovative approach to ethical governance, an approach relying primarily on self-governance rather than on advice or exhortation. Insofar as the liquid consumption of the member is being governed, drinking is governed for the sake of the soul (Valverde 1998: 120).

The techniques of recovery promoted by AA remind us of what Michel Foucault (1988: 18) described as technologies of the self, ethico-aesthetic practices

> which permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality.

It is worth clarifying that although Stiegler often adopts the Foucauldian conceptualisation of the term 'technology' and 'technique' (in French) to refer to 'psychotechnologies' of power (POD: 156), the way Foucault used the terms is relatively distant from the former's focus on material culture and technical objects. As Behrent (2013: 55) shows, Foucault, somewhat in contract to his contemporary Francophone philosophical scene, did not engage extensively with the challenges posed by technological progress and the relationship between human beings and technical objects. However, the concepts of 'technique' and 'technologie' constitute important elements in his method, as he set out to explore the genealogy of power relationships formed through practices of social control. Later in his work, the terms are used in a more positive sense, with the aim to understand the processes of subjectivation. In other words, the various ways individuals sculpt and transform their selves and their way of life, alluding to what the Greeks theorised as 'tekhnē tou biou' (art of living) (Behrent 2013: 90; Foucault 1997[1983]: 208).

The correspondence between AA practices and what Foucault conceptualised as technologies of the self has been noted by a range of scholars (Keane 2000: 326; Palm 2021: 103; Valverde 1998: 136), but as Palm (2021: 104) has suggested, most critical studies working from a Foucauldian perspective tend to see the practices of AA as part of a general addiction discourse for the government of oneself and others and fail to consider how the 'programme' of AA might distance itself from the dominant paradigm of addiction theory. An important factor in the complex relationship between AA and the medical-therapeutic apparatus is the singular conception of the term 'Disease' in the terminology of the organisation. While the term is used consistently from the beginning of the AA, its meaning conveys partly a medical problem and partly a spiritual weakness without tilting the balance in one or the other direction. Interestingly, AA through its adoption of the 'Disease' concept has been an important force for the proliferation of the 'Brain

Disease Model' of alcohol addiction, thereby actively siding with the medicalized understanding of alcoholism. However, as reported in an important study of AA (Mäkelä and others 1996), and in accordance with the 12 traditions, the members make serious efforts to avoid references to specific religious dogmas, psychological and psychiatric theories, or any other causal explanations of problematic drinking. It is the incorporation of a medical discourse and a religious-spiritual framework that leads Valverde to conceptualise the technologies of the self introduced by AA, as hybrid technologies (Valverde & White-Mair 1999: 398). These hybrid technologies attempt to guide the everyday life of the recovering alcoholics and promote sobriety as the only legitimate goal of the organisation. Following this theorisation, we could say that Stiegler's organology allows us to perceive the technologies of the self of the AA as a standardized yet somewhat flexible (as the 'Higher Power' can be interpreted in various ways) behavioural programme which amounts to be a technology of dis-automatising automation. While AA doctrines attempt to automatize the process of recovery, this automation dis-automatises the addictive behaviour, reminding us that automation *per se* is not entirely negative but has pharmacological aspects in being both curative and toxic. The loss of autonomy observed in the addictive state of mind, is replaced in the AA programme by a different loss of autonomy, one that is possibly less toxic. Therefore, addiction treatment is a technology of recovery in itself, however successful or not. The prosthesis of the technical artefact (psychotropic substances or instruments of behavioural addictions) is replaced slowly and often painfully with the tertiary retentions and other mnemotechologies of mutual-aid. Here I would like to focus on two specific elements of the AA practices that are of particular interest for an examination of the concepts of autonomy and automation in addiction: the practice of storytelling and the extensive use of slogans as recovery tools.

In examining the AA from a Foucauldian perspective, Palm (2021: 103) refers to 'striking resemblances' between the AA-based recovery programme and the line of work that Foucault undertook towards the end of his life regarding questions of ethics, subjectivity and the 'aesthetics of existence' (Huijer 1999: 69). Foucault's later project could be summarized as an investigation of how social and discursive formations created the complex interconnections of power and knowledge through which individuals in specific historical moments came to understand and transform themselves (Foucault 1988: 18). An important aspect of this investigation was a close examination of the concept and practice of *parrhesia* in the philosophical circles of the Greek and Hellenistic periods (Simpson 2012: 99). Foucault discussed *parrhesia* in his 1981-1982 lectures at Collège de France titled *The Hermeneutics of the Subject* (Foucault 2005: 366). According to Foucault, the concept in the Greco-Roman context signified the act of 'telling all (frankness, open-heartedness, plain speaking, speaking openly, speaking freely)' (Foucault 2005: 366). Foucault sees

parrhesia as an act of veridiction which constitutes an essential principle of ascesis. The ethical subject is the one who tells the truth and hides nothing. At the same time parrhesia refers to the 'technical procedure or tekhne' (Foucault 2005: 372) of telling the truth which relates not only to the content of the speech but to the frankness and freedom of the modality and time one says what they say. Describing simultaneously a moral disposition and a technical procedure, *parrhesia* has two enemies respectively: flattery and rhetoric (Foucault 2005: 373).

The ethos of *parrhesia* can be detected in the practice of storytelling which is a fundamental element of AA. Members of the organisation are expected to share their own stories recounting their experiences of drinking, the loss of control, hitting rock bottom and their recovery journey since joining the AA. A large part of the 'Big Book' consists of similar stories by the first members of AA that follow the similar pathway of starting to drink, developing a drinking problem, facing professional and familial disaster, joining the organisation, and spreading the message. Palm (2021: 109) identifies processes in the AA stories that resemble Foucault's understanding of *parrhesia* as an ascetic practice that governs the ethical formation of the subject. Paradoxically, a story told in an AA meeting is required to be entirely honest but also adopt a specific formula which—one would imagine—restricts its truth, since individual members might have had different patterns of use than this format implies. However, it might be hypothesized that it is the restrictions of the storytelling which make the practice a technology of therapeutic freedom, because it produces a coherent narrative of one's life in the chaotic circumstances of addiction. Moreover, parrhesiastic storytelling acts as a mechanism of identification of the individual predicament with the collective experience, promoting an egalitarian ethos that everyone is equally powerless over alcohol, regardless of their background. The story of the businessman and the story of the janitor might have different contextual references but follow the same course. At the same time, the dynamic between group members and facilitators is also very interesting. One might wonder what would be the risks of a narrative that does not have the coherence prescribed by the AA and how facilitators in individual groups deal with such occurrences. It is possible to associate this emphasis on regulating the structure of the meeting with Stiegler's core idea that the use of pharmaka should be regulated to maximise their curative force and minimise their toxicity.

An associated technology of the self that is integral to the AA programme is the use of slogans. Some examples of these slogans are the following: 'One day at a time', 'It works if you work it', 'Keep it simple', 'Live and let live', 'Let go, let God', 'Bring the body and the mind will follow', 'Don't compare – identify', etc. One can often see slogans like these printed and hung on the walls during the AA meeting and on the leaflets and books that its members read. Their appeal seems to be in the simplicity and banality they convey which relates to the organisation's consistent

belief that rationalization and 'deep thinking' are the hidden twins of justification for relapse. AA's opposition to complex theorisation regarding addiction can be also attributed to their pragmatic approach to recovery (Valverde & White-Mair 1999: 394). Slogans are an essential element of this pragmatism since they indicate a primary focus on sobriety without engaging in a dialogue with the medical-scientific accounts of addiction. At the same time, following the same logic as the 12 steps, slogans are action-oriented rules of everyday life which are also linked to an automation of the mind.

Adopting a Foucauldian perspective, the use of slogans in AA is reminiscent of the Greco-Roman *hupomnemata* that the philosopher-historian analysed in his text *Self Writing* (Foucault 1997: 207). As their name indicates, *hupomnemata* (from the Greek *hupomnesis:* reminding, LSJ: 1890) were memory aids in the form of any kind of record keeping technology (books, notebooks, archive) that served as 'guides for conduct' (Foucault 1997: 209). Their content could be quotes, passages from books, accounts of events and reflections that functioned as material for future reading and meditation or even further elaboration of a concept or problem (Foucault 1997: 210). Thus, one should not consider *hupomnemata* as only memory support: they were associated with a demand to follow an ascetic programme of exercises consisting of reading, meditation, conversation. In this sense, their function was not to uncover a hidden truth about the self, as it would be the case with a diary, but to 'capture the already-said, to collect what one has managed to hear or read, and for a purpose that is nothing less than the shaping of the self' (Foucault 1997: 211). Stiegler (DD1: 76, see also PFN: 419) suggested that we can see *hupomnemata* as 'technologies of individuation, such that individuation is psychic and collective, that is, social and political.'

Approaching the AA slogans as a revitalization of *hupomnemata*, Valverde comments that 'the admittedly inane, even vacuous slogans posted around AA meeting rooms…are not so vacuous. They have little semantic content, but as crystallizations of AA's homegrown collective wisdom they are full of practical meaning and power' (Valverde 1998: 136). Drawing a sharp opposition with the genre of academic texts, Valverde says that the slogans 'may appear beneath the notice of the social scientist' (Valverde 1998: 136) but still have a significant value in attempting to manage with concise, simple advice the journey of AA members towards sobriety. As an important step towards rectifying the lack of interest of social scientists in examining the slogans of AA, we can consider the study 'Sloganeering Our Way to Serenity: AA and the Language(s) of America' by Karen Kopelson (2007: 593). According to Kopelson (2007: 593), the AA slogans are created in a collective context and at the same time facilitate the emergence of a collective identity. Also, they are inherently pragmatic and action-oriented which makes their questioning and contemplation less relevant and thus less encouraged by the organisation. This conception of the

AA slogans reminds Kopelson of the simile that Mäkelä and others (1996: 123) used in order to describe phrases such as 'Keep it Simple' and 'One day at a time' likening them to 'manuals on how to operate stereo equipment.'

However, Kopelson (2007: 595) remains far more critical than Valverde (1998: 135) or Palm (2021: 111) in her examination of the AA slogans and culture in general. She considers that the slogans mirror an entire 'worldview' which is inherently individualistic and she remains suspicious of the AA references to a communitarian spirit indicating that the use of the latter aims to suppress individual differences and critical thinking. In this point, she reminds us of Bufe's (1998: 144) criticism that slogans are used in the AA setting to suppress any doubts about the programme. She also contends that the individualism promoted by AA is hand in hand with the refusal to engage in political questioning (Kopelson 2007: 597–8), an a-political stance which seems compliant with what Kopelson terms as 'dominant U.S. ideologies' (Kopelson 2007: 595). This criticism of AA slogans indicates that their potential of dis-automatising addictive behaviours they can produce negative process of automation that perpetuates instead of challenging an addictogenic status quo. In an interesting dialectical reversal, the AA programme while in some cases beneficial for those who follow it, seems to offer little or even undermine the struggle against the structural, ecological determinants of addiction confirming the nature of the AA technologies of the self as inherently pharmacological.

There is no doubt that AA's determination to avoid any engagement with political and sociocultural questions of addiction remains one of the most significant limitations of their approach. Whether this choice might have seemed justified in the aftermath of the failures of the temperance movements when the AA was founded or it was an ironically political calculation so that the organisation would appear less hostile to the established government and medical authorities, it is difficult to answer. It is certainly true that the technologies of the self that AA devised as the ascesis of recovery exclude a critical reflection of the impact that social class, a prevailing culture of consumerism and the alcohol industry might have in the patterns of drinking of a certain individual. Their perspective is individualist regarding the causes of alcoholism and communitarian regarding the process of recovery. However, one could imagine that of most concern to the movement are the recent attacks on the effectiveness of the 12-step method.

7.4. Is AA effective?

In a 2015 article published in *The Atlantic*, Gabrielle Glaser, journalist, and author of the book *Her Best-Kept Secret: Why Women Drink*: *And How They Can Regain Control* (2014), presents a scathing

critique of the AA and the 'rehab industry' claiming that these therapeutic programmes lack scientific basis and are remnants of a pre-modern quasi-religious approach to addiction. The article, demonstratively titled 'The Irrationality of Alcoholics Anonymous', argues that by being the dominant paradigm of addiction treatment, the 12-step method prevents other treatments options (including pharmacological treatments) from being offered, even though they are founded on and validated by scientific standards. A source that Glaser cites to support her criticism is the book by Lance Dodes, a retired assistant clinical professor of psychiatry in Harvard Medical School, who claims that, according to the evidence, only five to eight percent of the people who go to one or more AA meetings are able to achieve and maintain sobriety for longer than one year (Dodes & Dodes 2014). Other addiction specialists have challenged Dodes's interpretation of the studies he cites, claiming that instead these show a much higher success rate of 42% for the people who attended regularly 12-step programmes achieving abstinence throughout the 4th year of their recovery process (Emrick & Beresford 2016: 469).

The religious framework of AA, the refusal to engage in causal explanations of behaviour and the ambivalent relationship that the organisation has had with medical professionals and researchers makes evaluating the effectiveness of the programme a difficult endeavour. Even though the AA has exerted significant influence on the treatment of substance use disorders (Williams & Mee-Lee 2019: 412) with its basic philosophy being used in treatment facilities all around the world, an availability that could provide fertile ground for research of its effectiveness, the question remains open to debate. Another important element in this discussion is the specific way AA approach the cases of the members who fail to remain sober. It seems that the organisation presents an argument that claims the successes of the programme as an outcome of its effectiveness and the failures of it as an outcome of the members' individual deficiencies. It is interesting that they consider members who relapse and drop out of the organisation as people incapable of honest relationship with themselves. As one reads in the 'Big Book':

> Rarely have we seen a person fail who has thoroughly followed our path. Those who do not recover are people who cannot or will not completely give themselves to this simple program, usually men and women who are constitutionally incapable of being honest with themselves. There are such unfortunates. They are not at fault; they seem to have been born that way. They are naturally incapable of grasping and developing a manner of living which demands rigorous honesty. Their chances are less than average. There are those, too, who suffer from grave emotional and mental disorders, but many of them do recover if they have the capacity to be honest. (Alcoholics Anonymous 2001: 58)

Apart from the problems associated with the fact that 12-step treatments are hybrid models combining spirituality and therapy, significant challenges to research are posed in terms of methodology. For example, an important concern for researchers was the potential impact of self-selection in evaluating the effectiveness of AA. The concept of self-selection refers to the simple idea that those who attend AA meetings and follow the 12-step method of recovery might be more motivated to recover, therefore their sobriety could be interpreted as mostly an outcome of this motivation and not the specific characteristics of the AA programme (Humphreys and others 2014: 2688). Another significant methodological question refers to what constitutes a successful recovery in the first place. Is abstinence the main indicator of recovery or could moderate consumption of alcohol be a legitimate standard for the treatment of alcoholism? Most of the studies that have investigated the effectiveness of AA have adopted an abstinence-based view of recovery. Moreover, it is worth mentioning that both critics and supporters of the AA tend to confuse the 12-step programme as it is implemented in the group meetings with the institutionalized version of the 12 steps as found in the various addiction treatment facilities (Williams & Mee-Lee 2019: 413). The two versions of the AA philosophy have important differences, especially if we consider that often 'rehab' facilities provide care for people under forensic or compulsory treatment orders, while the traditional AA programme insists on the entirely voluntary character of the approach.

Considering the available studies as they have been published through the years, one concludes that only further investigation can settle the debate regarding whether AA attendance is equally, more, or less effective than other treatment options or even no treatment at all. In what is considered the 'largest and most expensive alcoholism treatment trial ever conducted' (Cutler & Fishbain 2005: 1), under the title of 'Project MATCH', three different options were evaluated regarding their effectiveness in treating problematic drinking. These were three manualized versions of Cognitive Behavioural Therapy (CBT), Motivational Enhancement Therapy (MET) and Twelve Step Facilitation (TSF). As the authors note, 'overall, a median of only 3% of the drinking outcome at follow-up could be attributed to treatment' (Cutler & Fishbain 2005: 1), which indicates very limited effectiveness for all the interventions in question. Also, selection effects seem to be the driving force for the improvement in drinking behaviour. According to the researchers 'alcoholics who decide to enter treatment are likely to reduce drinking' (Cutler & Fishbain 2005: 10). Shortly after this study, a review published by the prestigious Cochrane group analysed eight randomised controlled trials with 3,417 participants (Ferri and others 2006: 1). Researchers concluded that the studies that matched the selection criteria 'did not demonstrate the effectiveness of AA or other 12-step approaches in reducing alcohol use and achieving abstinence

compared with other treatments' (Ferri and others 2006: 2). The researchers noted that although the studies were selected according to very strict criteria, they had some limitations, primarily because they compared too many different interventions or they investigated too many hypotheses.

In another empirical study which conducted a 16-year follow up of initially untreated alcoholics (Moos & Moos 2006: 745), it was found that individuals who participated for 27 weeks or more in AA during the first year of their recovery had improved treatment outcomes in the final follow up. This study examined, also, the effects of other treatment options confirming their positive impact in recovery. With regard to reviews of the available literature, the study of Kaskutas (2009: 145) indicates that rates of abstinence are almost twice as high for the individuals who attend AA meetings and this attendance can predict future abstinence. Regarding research projects which attempt to establish experimentally a specific effect of AA or programs that follow the protocol of Twelve Step Facilitation, positive effects of the 12-step method were found in two trials, negative effect in one, and one trial found a null effect (Kaskutas 2009: 145).

A study conducted by Humphreys and others (2014: 2688) did a 3- and 15-month follow up of individuals who attended AA meetings in comparison to individuals who were offered alternative treatment options. According to this investigation, 'for most individuals seeking help for alcohol problems, increasing AA attendance leads to short- and long-term decreases in alcohol consumptions that cannot be attributed to self-selection' (Humphreys and others 2014: 2688). However, a 2017 systematic review by Bøg and others (2017: 55) concluded that '12-step interventions are, given the available evidence, neither better nor worse than competing interventions.'

Perhaps the most comprehensive study with evidence supporting the effectiveness of AA and Twelve-Step Facilitation interventions has been by provided by a Cochrane review published in 2020 (Kelly and others 2020). It is worth noting that a member of this group of researchers was Marica Ferri, who was the lead author of the Cochrane review published in 2006 and mentioned above. The researchers attempted to evaluate the effects of AA-based treatments in terms of abstinence, reduction in drinking intensity and alcohol-related consequences, severity of alcohol addiction and healthcare cost offsets. In the final review, 27 studies were included with 21 of them being either randomized controlled trials or quasi-randomized controlled trials. The studies in question had in total 10,565 participants. AA-based treatments were also compared with interventions such as MET and CBT (Kelly and others 2020: 2). According to the authors, manualized AA/TSF interventions have higher rates of success than other treatments, including CBT, in terms of abstinence. Also, AA-based treatments present the same effectiveness with other treatments for other alcohol-related outcomes and are much more cost-effective reducing

healthcare costs significantly (Kelly and others 2020: 3). These findings indicate a major discrepancy between the 2020 Cochrane review and the one published in 2006. According to Kelly and others (2020: 35), their review is superior to the previous one as it examines a larger number of more rigorous studies (27) and significantly more participants (10,565 vs 3,417). However, in a piece published in *Filter* magazine, psychologist Stanton Peele, who is a well-known critic of AA, indicated that the widely circulated results of the most recent review should be challenged because the authors used different measurements than the previous one, primarily focusing on rates of abstinence.

7.5. AA as a form of automation

Understanding the AA programme as an elaborate system of self-transformation mediated by techniques of everyday 'work' on oneself sheds light on a very specific dimension of addiction recovery. As was discussed earlier, the experience of addiction can be conceptualised as a state of impaired autonomy caused by the automation of the nervous system through psychotropic technologies. While all of us engage in the use of psychotropic technologies in order to sustain the pressures of a complex interaction with our milieu, addicted individuals have replaced a significant part of their coping mechanisms with the function of psychotropic substances and activities to an extent that their entire existence becomes a vehicle for the perpetuation of addiction. In Stieglerian terms, the toxic side of the technological *pharmakon* has become the dominant force in this person's life. Initially, for most addicts psychotropic prostheticisation appeared as a positive and creative process of increasing the resources available for coping with a stressful, overwhelming, and unpredictable environment. With prolonged use of psychotropic technologies, however, an automation of the psychological mechanisms involved in dealing with the world takes place, rendering the individual entirely dependent on the addictive substances/activities, thus impairing her autonomy.

One could say, then, that addiction recovery becomes a question of regaining autonomy. The AA philosophy, however, seems to lead to an interesting deviation from this logic. Without using the term 'autonomy'—the concept appears in the 'Big Book' only to indicate the 'autonomy' of each AA group—and instead preferring to talk about 'loss of control', AA makes the case that regaining control of oneself by oneself, what could be described as a state of autonomy, is an illusion. It is only with the help of a 'Higher Power' and the group that the alcoholic can achieve sobriety and inner peace. While the ambition to achieve autonomy might seem unrealistic from the AA point of view, the goal of sobriety can be attained by using another form of automation; that is, the psychotropic prostheticisation of the 12-step programme with its numerous, simple,

yet life-transforming technologies of the self. The programme automates the individual's engagement with her milieu by providing direct guidelines in how they should see themselves ('as someone who has lost control'), how they should relate to other people ('making amends'), and how they should relate to the organisation itself ('spread the message'). The automation of the psychological mechanisms by addictive substances and activities is not deconstructed by regaining autonomy, but by substituting one destructive form of automation with one that attempts to change the entire web of the relationships between the individual and her milieu (Moore 2019b: 175). On that note it is worth exploring these questions by focusing on an important novel about addiction and AA.

7.6. Addiction and recovery in *Infinite Jest*

In his controversial essay *'Rules for the Human Zoo: a response to the Letter on Humanism',* the philosopher Peter Sloterdijk traces the origins of the humanistic tradition in the times of the Roman Empire. It was in this period that, according to Sloterdijk, we see the emergence of a conflict, increasingly relevant for our times, between humanism and the growing influence of mass spectacles. With Cicero as its first representative, humanism appears as a movement for the cultivation of the human spirit, tightly connected with the function of literacy. Being literate and, thus, able to read the 'right books' (Sloterdijk 2009: 15), makes one part of the humanistic tradition, a special group of people that connect with each other by receiving the messages of the great philosophical books that, following the novelist Jean Paul, Sloterdijk considers 'thick letters to friends' (Sloterdijk 2009: 12). Sloterdijk's formulation is that humanistic tradition provides through its foundation in literacy a basis for relationships of friendship in humankind. The German philosopher bases his argument on a specific underlying principle: the human animal is always involved in processes—the 'two pressures'—of bestialization and humanization. Accordingly, mass culture and reading of philosophical and literary classics stand opposed to each other as antithetical forces to control human destiny. As Sloterdijk mentions:

> ancient humanism can be understood only when it is grasped as one opponent in a media contest, that is, as the resistance of the books against the amphitheater, and the opposition of the humanizing, patient-making, sensitizing philosophical reading against the dehumanizing, impatient, unrestrained, sensation-mongering and excitement-mongering of the stadium. What the educated Romans called *humanitas* would have been unthinkable without the need to abstain from the mass culture of the theaters of cruelty (Sloterdijk 2009: 16).

However, Sloterdijk's essay is not concerned primarily with the ancient form of this opposition. He uses the distinction of the Roman humanism against the disinhibiting influences of the vulgar entertainment of the same period in order to support his main claim that the essential concern of humanism, 'the question of how a person can become a true or real human being becomes unavoidably a media question' (Sloterdijk 2009: 16). Establishing this process as a fundamental anthropogenic factor, Sloterdijk laments that the telecommunications revolution of the 20th century, with its inherently anti-humanistic orientation, is putting the death knell on the prospect of taming the human animal by reading the right books. Therefore, humanism and its main weapon, the book, are losing the battle against an opponent that has dominated human civilization for the last decades.

One could possibly object to Sloterdijk's polar distinction of 'high' culture opposed to mass media and, as in any similar endeavour, there is a tendency to simplify some very complex processes. His concern however, in the face of attention economy and its disorders, the domination of mediated desires and the proliferation of screen-addictions, appears as an instance of a prevalent trope in contemporary criticism. As we have seen in chapter 5, Bernard Stiegler used an expanded version of the term proletarianisation to consider the pernicious effects of mass media in the Western psyche, claiming that, similar to the loss of technical knowledge of the 18th century industrial worker, contemporary life is characterized by a loss of *savoir faire* and *savoir vivre* (the loss of the know-how and life skills), an effect of drive-led, bestializing media. Sloterdijk's and Stiegler's therapeutic propositions for overcoming this kind of malaise are not to be considered in this chapter. I mention their diagnoses here as paradigmatic of a specific Apocalyptic and conservative attitude towards cultural phenomena in establishing an opposition between philosophical theorizing and mass media. According to this schema, 'high' culture, with philosophical texts as its greatest expression, is antithetical to the consumerist, debased, standardized, homogenous and 'easy' artifacts of the culture industry with its reality shows, mass sports events and entirely predictable 'pleasures'. Philosophical reflection is opposed to the incapacitation of thought and feeling created by a society that destroys attention, anticipation and criticism.

In this intellectual climate of increasing concern over the corrupting effects of mass media, David Foster Wallace's 1996 novel *Infinite Jest* appears as a lengthy meditation about a near-future society obsessed with short-term pleasure and entertainment. The pervasive influence of corporate culture is evidenced by the fact that even calendar years are auctioned-off and renamed after the highest bidder. For example, the most important year in the novel's dramatic action is the 'Year of the Depend Adult Undergarment'. Exhibiting a daunting size of 1079 pages including 388 endnotes, a very complex narrative structure and an elusive plot, the novel seems to require a

considerable amount of work from the reader. Thus, it attempts to resist in practice the culture of passive consumption it challenges at an abstract level. As testament to this, one can consider that the working title of *Infinite Jest* (a phrase itself borrowed from Shakespeare's *Hamlet*) was 'A Failed Entertainment'.

Often described as a 'dense', 'esoteric', 'encyclopedic' and 'complex' novel, *Infinite Jest* has three loosely linked narrative lines. The first narrative revolves around the seventeen-year-old character, named Hal Incandenza. Hal is a gifted student at the Enfield Tennis Academy (E.T.A.) in Massachusetts. Hal's father, who suffered from addiction and committed suicide at the age of 54 by placing his head in a microwave oven, was a brilliant physicist, tennis-player and avant-garde filmmaker named James Orin Incandenza. Hal appears to have an addictive personality himself and, by November Y.D.A.U., he has been secretly getting intoxicated every day for over a year while he has only recently begun to agonizingly withdraw from marijuana.

The second narrative line follows the addiction recovery of 29-year-old Don Gately, a former burglar addicted to Demerol, a synthetic opioid drug. Gately is an orderly of the halfway institution called Ennet House, which is located down the hill from the Enfield Tennis Academy. In November Y.D.A.U. Gately finds himself in the hospital wounded by a shot-gun blow, and on the brink of accepting Demerol once again, although he has managed to be completely substance-free for more than a year.

The lives of both the tennis academy students and the recovering addicts are seen against the background of a larger political plot. The novel refers to a near-future time when the United States, Canada, and Mexico comprise a unified North American entity known as the Organisation of North American Nations, or O.N.A.N. which is an obvious allusion to onanism. The creation of O.N.A.N. was essentially forced by the USA government and is opposed by numerous separatist groups, one of which being the Quebecois terrorist organisation named 'Wheelchair Assassins' or intentionally misspelled in French as 'Les Assassins des Fauteuils Rollents (A.F.R.)', aiming to either force Canada's government to reject the coerced gift of an enormous wasteland in its southern border or to put pressure in favour of Quebec's secession from Canada. Their masterplan is to take hold of the primary copy of 'Infinite Jest', the cartridge of the final film produced by James Incandenza, in which an appealing woman appears in front of a young boy saying constantly 'I'm sorry' in a seemingly endless apology. The film is rumored to have lethal properties by being so compelling that the viewer foregoes any other vital need, eventually dying from entertainment. Wallace adopts and alludes to the results of the 1950s intracranial self-stimulation experiments—which I discussed in chapter 3—conducted by Olds and Milner (IJ: 470), where rats forego nutrition and other basic needs, becoming addicted to the electrical stimulation of their brains'

reward system. Similarly, the Wheelchair Assassins want to take advantage of US-citizens addiction to spectation and entertainment and cause havoc by taking hold of and circulating the film before US-based secret agents, who are also looking for it. The woman in the film is Joelle van Dyne, a complex character who used to be the college girlfriend of Hal's brother, but purportedly also had an affair with his father and director of the movie James Incandenza. Throughout the novel she is described as always covering her face with a veil, either because of an acid attack from her mother for her own father's incestuous feelings towards her or because she does not want to be treated as only an object of attraction. After a suicide attempt, she is also admitted to Ennet House where she develops romantic feelings towards Don Gately.

From this brief overview, it can be seen that the experience of addiction permeates the entire novel. While reading the book, we find characters addicted to almost everything (drugs, alcohol, sex, entertainment, tennis, even other people's sweat) and addiction seems to be something more than a clinical condition, a phenomenon which reflects a certain mode of existence, promoted by a society that idolizes short-term pleasure. Perhaps, this is one of the reasons *Infinite Jest* remains one of the great addictological works of literature: in it, addiction is not a source of inspiration but instead the overarching structure of how the characters relate to their world. In this regard, the novel appears as the fictional counterpart of Avital Ronell's *Crack Wars*, where we find the following bold question: 'What if 'drugs' named a special mode of addiction, . . . or the structure that is philosophically and metaphysically at the basis of our culture?'. In an interview to David Lipsky (2010: 81), Wallace himself explained that *Infinite Jest* 'isn't supposed to be about *drugs*, getting off drugs. Except as the fact that drugs are kind of a metaphor for the sort of addictive continuum that I think has to do with how we as a culture relate to things that are alive.'

The experience of addiction in the novel is often posed as a loss of control and autonomy. The word 'autonomy' is rarely used in itself, but the reader will often find words like 'enslavement' and 'dependence' that portray the idea that the addicted self has lost the ability of self-determination. In a crucial passage about the nature of addiction, one reads:

> That a little-mentioned paradox of Substance[30] addiction is: that once you are sufficiently enslaved by a Substance to need to quit the Substance in order to save your life, the enslaving Substance has become so deeply important to you that you will all but lose your mind when it is taken away from you (IJ: 201).

[30] Wallace capitalises often the word *substance* when referring to matters of addiction.

Such a perspective on addiction follows Wallace's preferred strategy to consider complex phenomena in terms of feedback loops. In the description above, it is the recursivity of addiction which renders it so destructive, with the use of the Substance reinforcing its hold of a person's life to the extent that breaking the cycle of addiction, a *prima facie* positive change, endangers the stability of the system itself. One of the first scholars who attempted to examine the place of recursivity in *Infinite Jest* was N. Katherine Hayles (1999: 684), who presciently understood that the novel is a long meditation on recursive cycles of pleasure and destruction that exist both on the individual and the socio-ecological level. From the isolated viewer of the lethal cartridge who cannot escape the rewarding properties of a seductive film, to the entire US nation that keeps consuming despite the transformation of a huge part of the country into a waste dump. Two critical observations by Hayles seem pertinent in our discussion: Firstly, Wallace presents the recursive cycles as technologically mediated, with technological artefacts becoming essential elements for the experience of pleasure in postmodern societies. Secondly, our entanglement in recursive loops is combined with an unchallenged illusion of autonomy instead of revealing the interconnectedness of human beings with their environment. Therefore, one wonders whether we should interrogate the concept that addiction is a loss of autonomy, and attempt to consider the phenomenon of addiction itself as an outcome of a false belief that individuals are ever actually autonomous, attempting to achieve pleasure and/or relief without participating in the social bond. Nissen (2002: 50) has claimed, following a discussion of Kierkegaard's *The Sickness unto Death*, that from a certain point of view, addiction can be considered 'one form of Nemesis, one logical consequence of the sin of autonomy' in a cultural milieu that makes autonomy the absolute ideal to strive for.

But here, I would like to focus not on the metamorphoses of addiction in the novel's numerous characters. Instead, considering that my primary concern is the question of autonomy and addiction, I intend to examine how Wallace approaches the question of recovery from addiction against the background of the ageless question of autonomy versus automation. More specifically, I want to consider the place of AA in Wallace's formulation of recovery with special reference to the 'Big Book'. As I mentioned earlier, utilizing story-telling and other forms of narrative (Strobbe & Kurtz 2012) the 'Big Book' can be seen as a technical artefact of recovery, where personal stories attempt to represent the progression from addiction to sobriety (Ford 1989) by the implementation of the 12-step method. Nevertheless, the emphasis of AA on surrendering to a 'Higher Power' and on following other addicts' recovery principles hardly corresponds to a regaining of autonomy despite the group's insistence on personal responsibility. For, if addiction represents a loss of real or imagined autonomy, an inability to exercise free will and make the right decisions as a result of the psychical apparatus being automatized, then addiction recovery presents

itself as a promise of dis-automation, a regaining of autonomy (AD: 57). Following Sloterdijk's formula, one could say that the great philosophical texts opposing the disinhibiting, indulging properties of mass spectacles function potentially as addiction therapy. David Foster Wallace's suspicion towards the culture of mass media and entertainment, and the wealth of philosophical questions examined through the pages of *Infinite Jest*, condition us to expect a similar prescription for overcoming the addictive nature of contemporary culture. However, Wallace appears to approach the relationship between autonomy and automation in addiction from a different perspective.

An important thread that runs through similar questions of autonomy in *Infinite Jest* is the way characters approach sporting excellence, as often exceptional tennis playing is equated with an addictive relationship to the sport. Playing the sport appears to share the escapist properties of substance abuse, with the academy students often ending up wanting to play tennis to forget personal failures, tragedies and anxieties. Wallace often attempts to portray that, in the world of competitive sports, this kind of passionate attachment to the game translates into the loss of individuality, autonomy or even humanity. In one of the most significant scenes of the novel, the abusive, alcoholic father of James Incandenza is being blunt with his son telling him that the secret to success is 'transcending that overlarge head' (p. 158). And then he goes on to say:

> Son, you're ten, and this is hard news for somebody ten, even if you're almost five-eleven, a possible pituitary freak. Son, you're a body, son. That quick little scientific-prodigy's mind she's so proud of and won't quit twittering about: son it's just neural spasms, those thoughts in your mind are just the sound of your head revving, and head is still just body, Jim. Commit this to memory. Head is body. Jim, brace yourself against my shoulders here for this hard news, at ten: you're a machine a body an object, Jim, no less than this rutilant Montclair, this coil of hose here or that rake there for the front yard's gravel or sweet Jesus this nasty fat spider flexing in its web over there up next to the rake-handle, see it? See it? (IJ: 159).

Automation, the erasure of subjectivity into a machine-like existence appears in the novel as double-edge sword: on the one hand it guarantees professional success and freedom from the crippling effects of overthinking, but on the other hand it eradicates what makes the characters human. In the opening scene of *Infinite Jest*, which, however, is chronologically last, Hal Incandenza collapses in front of the committee of academic affairs that is to select him for college. Either because of ingestion of a powerful hallucinogenic substance or because of withdrawal, he fails to communicate effectively with the examiners. Feeling misunderstood he exclaims: 'I'm not a

machine. I feel and believe. I have opinions. Some of them are interesting. I could, if you'd let me, talk and talk. Let's talk about anything' (IJ: 12).

In contrast to Hal's collapse, stands the miraculous recovery of Don Gately. For the literary creation of Don Gately, Wallace appears to have been inspired by 'Big Craig', a well-built resident at the 'Granada House' where the author attempted to treat his addiction. Like Gately, 'Big Craig' had been a burglar and a Demerol addict, was in his mid-twenties, and occasionally offered his services as a cook (Max 2012: 141). Most importantly, he was eager to offer Wallace insights from his experience in AA treatment. However, Gately's ambivalent relationship towards the AA's principles reflects Wallace's own struggles with a treatment paradigm that seemed opposed to everything he had been used to until he started attending weekly sobriety meetings in February 1988 (Max 2012: 106). His passion for listening to people's stories made these meetings extremely appealing but, as he would confess to friends, he considered what he was being asked to do for his recovery extremely difficult. When he returned to Tucson, Arizona, he became a member of the local chapter of AA, described in his biography as 'Big Book fundamentalists' (Max 2012: 113), denoting a particular emphasis on adhering to the twelve-step method promoted by the organisation.

Coming from a family of skeptics, Wallace's major problem was to follow the famous 3rd step of the model, as outlined in the 5th chapter of the 'Big Book', which mentions that AA members made a decision to turn their will and their lives over to the care of God as they understood 'Him'. Wallace used to say that his parents refused to allow him and his sister to attend church because religious belief could contaminate the rigour of their thinking (Max 2012: 114). While a member of the AA, he encountered a group of mostly working-class people, where brilliance and academic excellence were considered less valuable than modesty, humility, and simplicity. An already published author (*Broom of the System*, his first novel, was published in 1987), the son of a philosophy professor and a voracious reader of Wittgenstein and Derrida, found himself among a group whose suspicion of deep philosophical theorizing was so deep that some of their favourite slogans were 'Your best thinking got you here', 'Keep it Simple', and 'Stop Trying to Figure Everything Out' (Max 2012: 179). One finds a similar idea in *Infinite Jest* (IJ: 203): 'That most Substance-addicted people are also addicted to thinking, meaning they have a compulsive and unhealthy relationship with their own thinking. That the cute Boston AA term for addictive-type thinking is Analysis-Paralysis'. At the same time, the other members were impressed by his eloquence and found his elaborate narratives about the daily struggles of sobriety fascinating. He eventually started to offer spiritual and even practical help to his peers by rewriting job applications and professional correspondence. On a personal level, he remained dumbfounded by the fact that

what he considered a series of clichés were actually succeeding in promoting a substance-free lifestyle after years of addiction. Wallace would write to friends 'I don't know how recovery works, but it works' (Max 2012: 179). Reminding of Valverde's (Valverde 1998: 135) appreciation of AA clichés, he would write in *Infinite Jest*: 'It starts to turn out that the vapider AA cliché, the sharper of the canines of the real truth it covers' (IJ: 446).

Wallace's initial skepticism *vis-à-vis* AA is transcribed in various instances in the novel. One character, for example, challenges the insistence on prayer expounded by followers of the AA paradigm:

> So this purports to be a disease, alcoholism? A disease like a cold? Or like cancer? I have to tell you, I have never heard of anyone being told to pray for relief from cancer. Outside maybe certain very rural parts of the American South, that is. So what is this? You're ordering me to pray? (IJ: 180).

Perhaps the most vocal critics of the AA tradition in the novel, are the Boston-based 'freelance script writer' Randy Lenz and the professor Geoffrey Day. Both of them find the clichés used in the AA group 'totalitarian' (IJ: 1003n90) and ridiculous. According to the intake officers of the Ennet House 'it's the newcomers with some education that are the worst' because 'they identify their whole selves with their head, and the Disease makes its command headquarters in the head' (IJ: 272). Despite the reservations Gately had in the beginning about the AA, he came to eventually believe that 'clichés are (a) soothing, and (b) remind you of common sense, and (c) license the universal assent that drowns out silence; and (d) silence is deadly, pure Spider-food, if you've got the Disease' (IJ: 278).

The writer Leslie Jamison, in her book *Recovering,* recalls her feelings of surprise when she heard that *Infinite Jest*'s main narrative concerned a process of addiction recovery (Jamison 2018: 346). She recollects her initial assessment of the book as 'ego-inflated—a blue brick of a book by a smart guy who'd wanted to buoy his ego by writing it, beloved by other smart guys who wanted to buoy their egos by reading it' (Jamison 2018: 346). However, Jamison read the novel 'like a recovery program, by reading fifty pages a day' (Jamison 2018: 346) and claims that it was *Infinite Jest* with its ambivalent mockery/endorsement of the AA principles and practices that showed why she simultaneously found sometimes the meetings odd and absurd but still necessary for the progress of her treatment. Addiction recovery appears not as regaining autonomy but as replacing the drug element of the recursive loop of addiction with the doctrines of AA, the prayers, etc., which reminds us of Avitall Ronell's (1992: 25) idea that addiction treatment requires a 'shift of dependency': from substances to a 'a person, an ideal or to the procedure itself of the cure.'

Stiegler's framework appears to be highly relevant for envisioning addiction recovery within the nexus of automation/dis-automation. Contrary to pessimistic and technophobic readings of his cultural criticism, Stiegler did not have a unipolar view of processes of automation as inherently negative or pathological. Instead, he investigated the possibility of placing automatisms 'at the service of dis-automatization' (NA: 127). Automatic processes have therapeutic potential at both the individual and collective level in liberating our psychic apparatus for knowledge production and diversification of experience. More specifically, Stiegler spoke of 'a noetic politics of reticulation' that would use automatic processes, systems and artefacts in order to promote the capacity of individuals and organisations to dis-automatize; in other words, to produce what he termed 'negentropic bifurcations' (NA: 51). Therefore, automation is therapeutic when instead of succumbing to drive-based compulsions, it allows individuals to create new forms of life. In this sense, 12-step groups provide guidance and examples that automatize certain habits to avoid relapse, yet they attempt to break the automatic processes in which their members used substances and behaviours in order to deal with stress, frustrations and traumas. Automation of recovery is opposed to the automation of addiction, and from this point of view it constitutes a process of dis-automation.

Reading *Infinite Jest,* we encounter a glorification of a seemingly anti-philosophical stance. For, if there is an easily recognized enemy of philosophy, this is probably common sense, with clichés remaining perhaps the latter's most egregious expression. Embedded in that is an explicitly vehement opposition to irony. As Wallace writes 'An ironist in a Boston AA meeting is a witch in a church. Irony-free zone' (IJ: 369). Similar suspicion towards irony is found in Wallace's most famous non-fiction piece 'E Unibus Pluram', his essay on television where he claims that

> irony, entertaining as it is, serves an exclusively negative function. It's critical and destructive, a ground-clearing. Surely this is the way our postmodern fathers saw it. But irony's singularly unuseful when it comes to constructing anything to replace the hypocrisies it debunks (Wallace 1993: 183).

Critics (Aubry 2011; Konstantinou 2016) have also considered Wallace's endorsement of the AA program as an often-direct rebuttal of some of the most important tenets of contemporary high culture: the apotheosis of self-expression and difference, the contempt of clichés and common sense, and the persistent belief that theory and science-based knowledge are the preeminent forms of understanding (Baskin 2019: 4–6).

Commentator M.K. Holland (2006: 233) has rather insightfully suggested that in *Infinite Jest* the AA paradigm should be seen as an alternative to addiction, in a paradoxical identification

process where, hearing identical stories with your own, you end up forgetting yourself and making 'the Program a stand-in for the drug' that serves the same purpose. This relates to Wallace's diagnosis that addiction is inherently related with self-obsessed compulsive thinking:

> 99% of compulsive thinkers' thinking is about themselves; that 99% of this self-directed thinking consists of imagining and then getting ready for things that are going to happen to them; and then, weirdly, that if they stop to think about it, that 100% of the things they spend 99% of their time and energy imagining and trying to prepare for all the contingencies and consequences of are never good (IJ: 203–4).

A few lines later he mentions that addicts often try to pray excessively for the same purpose: 'the literal loss of one's mind' (IJ: 204). However, there is always the destructive side of the loss of the self. Hal Incandenza's collapse in the beginning of the novel with its characteristic failure of self-expression is meant to signify the disintegration of the self. Hal's peak as an athlete coincides with the fully-established addiction. 'Both have drawn on the same erasure of the self' (Burn 2003: 51–52).

Wallace scholar Steven Burn (2003: 45) has noted that *Infinite Jest* provides a literary exposition of the limits of that 'characteristic American obsession' with the machinic perfectibility of the self, ingrained already from the birth of the country, as evidenced by Benjamin Rush's belief, founder of American psychiatry and an early addiction expert whose theory of alcoholism I considered in Chapter 2, that there was a need to convert men into 'Republican machines' (Rush 1947: 92; cited in Burn 2003: 45).

One of the great contradictions of contemporary civilization is that it glorifies automation everywhere else apart from the place where it was conceived, the human mind. Perhaps, this is the reason why addiction, as a process of automation of the nervous system turning destructive, remains one of most intellectually and therapeutically challenging conditions in human psychopathology. Should recovery attempt to re-establish an individual autonomy where the addicted subject resists the automation pressures dominating her milieu? What if it should instead focus on substituting the intoxicating automation of addiction with the substance-less automation espoused in the 'Big Book' through its repetitive rituals of prayer, slogans and clichés? What is the place of the text as a technology of care and understanding in this dilemma? In other words, should an addict read Plato and Kant or a cheap, paperback, self-help book purchased in a charity shop? One could even say that it is the act of reading itself, with its immersive, and for this reason potentially addictive, qualities that is inherently therapeutic.

In that sense, the novel by its mere existence seems to actually approve of Sloterdijk's idea that reading, especially reading fiction, can helps us *live* better and *be* better (Plank 2021: 2) in a

world scaringly similar to the near-future dystopia that Wallace imagined, a society dominated by corporate interest and short-term pleasure. From this point of view, *Infinite Jest* paradoxically fails to fulfill its stated purpose in becoming a 'Failed Entertainment', because it succeeds in showing the therapeutic, redemptive and transformative potential of reading fiction.

7.7. Conclusions

This chapter attempted to approach the question of recovery in addiction by focusing on the concept of autonomy in the experience of the addicted individual. A major obstacle to this endeavour is the difficulty in establishing what exactly could constitute a comprehensive recovery outcome. As we have seen in chapter 5, adopting a perspective inspired by Georges Canguilhem, recovery could be translated as the regained ability to create new norms in the relationship that an individual has with their environment. Equating recovery with abstinence remains a limited view of addiction treatment by confounding what one should consider a possible indicator of recovery (abstinence) with the entire transformation of the individual's subjectivity.

It is in this context, that I discussed AA's technologies of the self as techniques of replacing the automation of addiction with an automation of recovery. Reviewing the existing arguments about the impairment of autonomy in addiction, I concluded that neurobiological evidence and phenomenological reports indicate that autonomy in addicted individuals is compromised, which however should not be translated as a condition of overwhelmed agency. Addiction impairs autonomy but does not deprive the individual of every form of agency, given that addicts are most of the times capable of making choices. The AA programme attempts to overcome this impairment of autonomy partly by introducing the idea of a 'Higher Power' as another agent in the relationship between the individual and the substance and partly by regulating with simple, pragmatic and comprehensive guidance the conduct of its members. Parrhesiastic storytelling, praying, inane slogans and the restriction of a temporal horizon of recovery, through AA's insistence on the 24-hour cycle (Valverde 1998: 135), seem to provide some therapeutic outcomes despite the criticisms levelled against the organisation regarding its effectiveness and its antiscientific stance.

It should be recognised, however, that there is still room for different interpretations and subjective determination in the adoption of AA. In a sense, AA practices as every technology of the self, can be adopted by individuals according to different priorities and values as the slogan 'take what you want and leave the rest' shows. My analysis of the function that the concept of a 'Higher power' has in AA-based recovery does not mean that I dismiss the significant potential

that such a concept might have, even—and maybe especially—when translated beyond a religious register. In a sense, when addicted individuals admit their powerlessness, their agency is not necessarily lost, but distributed to modes of existence that are inherently participatory (Keis and others 2016: 251). I use the term 'automation' to imply a certain standardization of the conduct and the belief system of AA-members which aims at regulating the way an individual approaches their identity ('I'm an alcoholic'), their recovery goals (complete abstinence) and their relationship with other people (in the presumption that the addicted individual needs to 'make amends'). As Keis and others (2016: 245) put it: 'Being both highly standardized and subject to local and individual interpretations, the 12-step fellowships […] provide a fertile ground for exploring how standards, which in their ideality appear as absolute and de-contextualized, emerge as precarious and continuously negotiated by participants in diverse practices.' Automation is not inherently negative, and, in fact, it can be positive, as long as it does not restrict the margin of differentiation and singularization.

Nevertheless, the technologies of the self espoused by AA despite their communitarian parlance remain heavily individualistic and isolationist towards the outside world. AA might have pioneered the mutual-help movement in the previous century but their myopic refusal to engage with sociocultural and ecological determinants of addiction limits substantially their perspective and their therapeutic potential. It is no coincidence that certain elements of the 12-step programme were so easily incorporated by the profit-based, 'rehab' industry. It is important to investigate the possibility that the mutual-help methodology of AA could be adopted in attempts to transform the addicted individuals' interior and exterior milieu. The next chapter will try to examine this idea by considering the impact of artistic practices in transforming subjective and objective configurations following the paradigm of cultural-historical psychology.

Chapter 8: The theatre of recovery

> Will transformation. Oh be crazed for the fire
> in which something boasting with change is recalled
> from you; that designing spirit, the earthly's master,
> loves nothing as much as the turning point of the
> soaring symbol.
> —Rainer Maria Rilke (1977[1922]: 61)

8.1. Introduction

An essential aspect of how the public discourse on addiction has been framed during the last one hundred years is aptly captured by the well-known Alcoholics Anonymous cliché: 'We have seen the truth demonstrated again and again: "Once an alcoholic, always an alcoholic"' (Alcoholics Anonymous 2001: 33). This phrase, as well as conveying a supposed 'truth' about the state of addiction, retains a performative function acting as a constant reminder that there is no 'final' recovery from addiction and articulating the addicted individual's eternal vulnerability to the addictive substance/behaviour. In terms of treating addiction, this is one of the most important contradictions of both the AA-based and other technologies of recovery: they confess a belief that addicts can change their lives and pursue a non-addictive lifestyle, but they conceptualise the same people as always prone to relapse. Following the approach adopted in this thesis, the practices of AA constitute technologies of automation that attempt to replace the automation of psychotropic prostheticisation, but they do not constitute technologies for transforming the milieu of the addict. This is perhaps because of the futility of a recovery process that neglects the sociotechnical determinants of addiction and remains isolationist towards the outside world.

In chapter 5, I adopted Canguilhem's approach of health and pathology in an attempt to conceptualise addiction under an ecological framework based on the idea that a healthy organism has the ability to negotiate their relationship with their milieu by creating new, 'superior' norms. Addiction, in this sense, can be defined as a process marked by the inability of the individual to challenge existing norms of engagement with the environment. In a sense, the state of addiction constitutes a transition from an active state of transforming the self and the milieu to a passive state of self-preservation. Thus, elements of addiction as pathology do not involve only a specific form of addictive behaviour (drinking alcohol, gambling, playing video games) but also, and even

more fundamentally, other norms that govern someone's life. As a result, in order to challenge their addiction, the addict should not only stop the addictive pursuit but also be able to create new forms of engagement with their environment, such as having a job that involves meaningful contribution to personal and social flourishing, a different relationship with romantic partners and family members, a different everyday routine, even a different diet. This is probably the most important limitation of current approaches of addiction that presuppose that overcoming addiction is equal with some form of abstinence from the addictive behaviour. If addiction is to be treated, it has firstly to be considered as an issue of individual and collective norms that do no longer promote the individual's and society's capacity to create new norms. The process of addiction does not lead only to an existential condition to be defined only by quantitative criteria describing an overwhelming involvement with a substance or activity but should be understood as the condition where the subject loses the ability to engage functionally, productively and willingly in other non-substance related activities. The role of technical artefacts in these processes cannot be emphasized enough. Technologies of psychotropic prostheticisation which initially offer opportunities and possibilities of new norms in our relationship with the environment, end up standardizing modes of living, rendering individuals and communities incapable of challenging, transforming and improving existing norms. The curative aspect of the pharmakon is overwhelmed by its toxicity.

Along similar lines, Stiegler developed a diagnosis of contemporary culture as one in which technical artefacts are used in facilitating *aesthetic conditioning* of the individual as a consumer depriving her from the possibility of *aesthetic experience*. This symbolic misery (the inability to participate in the construction of the symbolic order that is society) (SM1: 3) is to be attributed in the consumerist orientation of economy that prevailed in the beginning of 20th century and remains dominant until today. Consumerism has transformed the psychic organisation of subjectivity in a process of *bestialization (bêtise)* where social life becomes drive-based (PFN: 391) and individuals become disaffected (DD2: 83–90). This regression and desublimation constitutes one of the most important dimensions of addictive behaviour, and thus according to Stigler (following the title of a 2009 conference on addiction held by French clinicians) society has become 'massively addictogenic' (Ars Industrialis 2010).

Adopting this Stieglerian framework, addictive behaviours can be viewed as forms of interaction with the technical prosthesis. Technically processed addictive substances and technically mediated experiences (slot machines, video games, pornography) can be considered as externalised organs that are (ab)used in order to produce an intended change of individuals' psychobiological state. These organs' pharmacological character is exhibited in the fact that their

use can bring a positive change, having a therapeutic effect in a self-medicating manner, while maladaptive habituation to them causes negative consequences.

However sophisticated, the task of a theoretical diagnosis should unavoidably be complemented with the task of identifying/inventing an alternative treatment of addiction. This endeavour though, should not seek for a psychotechnology that will facilitate the continuation of existing processes of mal-adaptational individuation but rather a technology of the self which will constitute the basis of a new process of psychic and collective individuation (DD1: 1). Instead of a technology of automation that does not address the question of autonomy, like the practices of AA, a technology that transforms subjectivity in the process of automating it, seems more promising in the search for individual and collective autonomy. Against the narrowing of attention and homogenization of aesthetic experience of contemporary culture, it is proposed that engaging in artistic creative endeavours can provide the paradigm of new modes of existence (DD1: 12). While I was exploring the dynamics of recovery from addiction, I considered the possibility that theatre and performing arts in general, as the exploration of alternative worlds, roles, and experiences *par excellence*, seem to offer a creative, if difficult pathway of recapacitation towards the invention of new norms.

The French addiction specialist Claude Olievenstein (1997) claimed that it is more fruitful to see the addict as the messenger who tells the world that 'our values and our virtues are sick'. In this statement Olievenstein implicitly provides an insight that addiction recovery is not an individual journey; rather, it is built upon a complex web of symbolic, material and psychological processes in which the person has to invent different values and different virtues to overcome addiction and '*la misère du monde'*. Simultaneously, this transformative endeavour implies the need for a re-organization of habits, ways of thinking, priorities and choices. In other words, the need for a new identity. Theatre and more specifically, the attempt to create a new form of life through the means of art, seems to be the oldest and most resilient technology of self-transformation in human history. However, theatre is fundamentally a social art, an activity that has strong ethical content. As classicist Paul Woodruff (2008: 20) mentions in his book *The Necessity of Theater: The Art of Watching and Being Watched*: 'there is an ethical reason to practice the art of watching. Part of our need to watch theater grows from our need to care about other people', which is for him the 'entire basis of ethics' (Woodruff 2008: x). Similarly, Peter Meineck, a professor of classics at New York University, has argued that theatre in ancient Athens was an important institution through which citizens had the opportunity to experience a range of affects such as empathy and understanding that were fundamental for the creation and continuity of a democratic community (Meineck 2018: 1).

From a certain point of view, performing arts in recovery offer us the most valuable elements of the AA philosophy—community and participation—while they have the potential to avoid the pressure to conform to AA's strict practices. In other words, I decided to consider the theoretical possibility that performing arts could function as forms of psychotechnology that lead to the diversification of subjectivation providing a medium of what the philosopher and psychotherapist Félix Guattari termed 'heterogenesis', that is, 'processes of continuous resingularization' (2014[1989]: 47) that lead to the production of different individuals, societies and environments. As I will show, being themselves forms of *techne*, performing arts are inherently pharmacological and they exhibit simultaneously therapeutic and toxic properties. The cathartic, therapeutic function of theatre had been theorized already from the times of Aristotle (Poetics 1449b: 10). Performing arts, however, can be instrumentalized towards the opposite direction of manipulation and masking the contradictions of contemporary life. Especially in a world where 'performance has come to mean the optimisation of efficiency' (Moore 2013: 29) such attempts are easily co-opted in order to alleviate but not transform the tensions produced by alienation, exploitation and disillusionment.

It could be argued that art therapy and more specifically drama therapy are already growing fields of specialized psychotherapeutic intervention with most types of addicted individuals. Indeed, there is an important body of research that indicates the advantages of the existing approaches (Gordon, Shenar & Pendzik 2018; Horay 2006; Holt & Kaiser 2009; Newman 2017; Pendzik 2006; Frydman 2016; Reynolds & Zontou 2014). However, what is articulated in the following paragraphs is an admittedly speculative and original synthesis of concepts developed in the diverse traditions of anthropology, positive psychology and the art of theatre with the aim to produce an alternative perspective on addiction recovery. More specifically, it will be shown that a future treatment model of addiction could be enriched by integrating the concepts of *machine zone* proposed by Natasha Dow Schüll (2012), the psychological construct of *flow* developed by the psychologist Mihaly Csikszentmihalyi (1975; 1988a; 1988b) and the concept of *perezhivanie* as used by the theatre practitioner Konstantin Stanislavski (2008) and later by the child psychologist L.S. Vygotsky (1994). The chapter will end with some reflections on the idea of normativity in Canguilhem's work and the psychological theory of perezhivanie, as they relate to addiction. Ideas from these diverse historical, intellectual and disciplinary backgrounds can offer contributions to the endeavour of envisaging a novel form of addiction treatment.

8.2. In the zone

One of the most important and enlightening recent accounts of addiction has been Natasha Dow Schüll's (2012) *Addiction by Design: Machine Gambling in Las Vegas*. Schüll, a cultural anthropologist having spent years doing research in Las Vegas, attempted a thorough investigation of the gambling industry (using diverse methods from studying casinos' architecture to conducting interviews with industry's insiders and users) focusing especially on the experience of people addicted to playing slot machines. For Schüll (2012: 13), the examination of slot machine use, considered, at the moment, the most popular form of gambling in USA, is also an interesting case-study of the human-machine interaction that constitutes a large part of everyday life at a global level.

A finding worth noting of Schüll's (2012: 11) study is the counter-intuitive suggestion that the gambling addict's overall motivation is not necessarily personal gain. The various interviews she conducted identified that people are getting addicted not to the 'high' produced by the possibility of winning but to the experience of being in the 'zone'. Hence, the primary motivation was to continue to play since playing provided an immediate way to *get in the zone*. But what does 'being in the zone' mean? According to the vivid description of one of the participants in Schüll's (2012: 2) study:

> It's like being in the eye of a storm, is how I' d describe it. Your vision is clear on the machine in front of you but the whole world is spinning around you, and you can't really hear anything. You aren't really there—you're with the machine and that's all you're with.

Schüll (2012: 171) describes this 'being with the machine' as a hermetically closed circuit of action such that the locus of control—and thus, of agency—becomes indiscernible. The individual repetitive and swift actions cannot be distinguished from the operation of the machine, in a state where the user's intentionality coincides with the modalities of how the machine responds (Schüll 2021: 141). Being in the zone, the process of immersion that constitutes the core of this experience is not only a temporary escape of one's miserable and boring life but also a process of habituation involving order and certainty in an era when all certainties (stable jobs, social welfare, etc.) have been lost. Schüll (2012: 13) indicates that slot machine addiction is an example of how people in an era of what Ulrich Beck (1996: 1) has termed manufactured or 'fabricated uncertainties', attempt to use technology to manufacture 'certainties'.

It could be argued that everyday life at a global level is increasingly colonized by infinite 'machine zones', leading to the automation of the nervous system as people interact with digital technological artefacts. Although one should be cautious in diagnosing addictions *en masse*, the immersive properties of our engagement with digital devices presents this characteristic attribute

of dissociation ('self-exit' in Schüll's terminology) and short-term trance described by Schüll in her research on slot machine gambling (Schüll 2021: 141).

8.3. The bright and dark side of flow

As Schüll herself admits (2012: 166–181) the state of the machine 'zone' has a lot of similarities with 'flow', a phenomenon primarily investigated by the positive psychologist Mihaly Csikszentmihalyi. He and Martin Seligman (Seligman and others 2005) are considered two of the most prominent exponents of the field of positive psychology. There has been an important wave of criticism (Davies 2016; Ehrenberg 2009) towards positive psychology as a 'science of happiness' that fits perfectly well with the individualist and Westernized conceptions of well-being. However, following Stiegler, one could identify positive psychology as form of psychotechnology that is 'pharmacological', meant here as having a dual (curative and toxic) aspect. Hence, the creative use of even heavily criticized concepts is entirely legitimate, if the aim is the invention of alternative models of treatment of addiction or any other pathology

The phenomenon of *flow* belongs to a range of experiences that are considered optimal (Csikszentmihalyi 1975; 1988a), a term that is used to characterize experiences that involve deep concentration, a sense of adequate performance, and are intrinsically rewarding creating a condition where the individual feels totally absorbed with limited consideration of anything else. The underlying research belonged to the field investigating intrinsic motivation (Csikszentmihalyi 1988a: 6–7) which refers to activities that have low or no external rewards (money or pain avoidance). The term 'flow' was used by some of the participants in the early studies (Csikszentmihalyi 1975; 1988a) on the subject. Activities like sports, writing, jazz improvisation, are considered among others as highly inducive of flow.

Csikszentmihalyi (1988b: 24) states that flow 'is the condition…when all the contents of consciousness are in harmony with each other, and with the goals that define the person's self'. A very important aspect and precondition of flow is the perceived balance between perceived challenge and perceived skills. In other words, a very difficult task for an individual probably will not induce *flow*; the same expected with a very easy one. Concerning our problematic this is a significant observation. Habituation and practice are necessary in order to produce a sense of optimal experience. Engaging in new experiences, like performing arts for most people might be a difficult challenge as it probably forces them to move out their 'comfort zone'. Nevertheless, every individual can discover an activity which entails the possibility to induce 'flow' and with or without its turning into a pathological form of habituation.

Other interesting features of flow is the necessity of clear goal-setting, the need for unambiguous feedback, total focus on the relevant task, absorption, loss of self-consciousness, distortion of time perception and the sense of control over the outcome of the activity (Csikszentmihalyi 2008: 49). When these dimensions are present the experience becomes according to Csikszentmihalyi's terminology 'autotelic' (i.e., an end in itself), which means that an individual experiencing flow is seeking its repetition, as it is accompanied by enjoyment and offers intrinsic reward (1988b: 33).

As it probably has already been suspected, the experiences that induce flow are generally framed as positive, providing a feeling of self-actualization[31] and creative existence. It is plausible then to challenge any association between flow and addiction. What does the positive and self-fulfilling experience of flow have to do with the compulsive, destructive and eventually non-rewarding addictive experience? Despite the legitimacy of this suggestion there is ample empirical evidence to be considered against it.

For instance, the immersive characteristics of gambling were not identified by Schüll for the first time. According to a study published in 1988 there was a significant difference in experiences described as dissociative between 'problem gamblers' and 'social gamblers' with the former having a greater number of those (Kuley & Jacobs 1988: 197). This was confirmed by a more recent study by Hopley and Nicki (2010: 383) who found that dissociation was one of the important factors in predicting problematic online poker playing. This extends, also, to other forms of digital addiction. In a study about cyber-game addiction, Chou and Ting (2003: 672) suggest that enjoyment produced by flow activity might increase its potential to be repeated setting the precondition of its becoming-addictive. Park and Hwang (2009: 383) corroborate this finding suggesting that the experience of flow predicts online game addiction. A slightly different finding (Hull and others 2013: 150) indicates that the most important dimension of the *flow* experience in producing addiction is the distortion of time perception. Such is the acknowledgment of *flow*'s potential for the computer game industry, that software developers have stated explicitly: 'If we had recipes or formulas for creating immersive or flow experiences, these would certainly rather quickly become an industry standard for most games' (Nacke & Lindley 2009: 1–2).

Is it only the 'autotelic' nature of *flow* experiences that explains its highly addictive potential? Csikszentmihalyi would probably reply positively. However, according to Jacobs (1986; 1988) it is not dissociation in and of itself that creates the craving for repeating the behaviour but its self-medicating function. Making dissociation the defining characteristic of addiction, Jacobs

[31] Csikszentmihalyi (1988a: 5) had been greatly influenced by the work of American psychologist Abraham Maslow who introduced the idea of self-actualization at the centre of his theory on human needs.

(1986: 24) in his *General Theory of Addiction* claims that people become hooked by a combination of positive (remembering the feeling of pleasure of the initial experience with the addictive substance or behaviour) and negative (avoiding pain and stress) reinforcement. In other words, escapism seems to be an important aspect of the rewarding characteristics of dissociation. Jacobs (1988: 27) has claimed that this dimension can be identified in more than one forms of addictions, and most importantly tends to distinguish addictive from non-addictive patterns of use.

It can be hypothesized that brain mechanisms are involved in the similarities between the phenomena of addictive consumption and flow experience. While neuroscientific investigations show that the acquisition of skills is dependent on the activation of prefrontal cortex the execution of habitual activities requires minimal involvement of the same brain region. As Dietrich (2004: 753) suggests doing two different things at the same time requires a division of labour in the brain which involves different regions with unequal distribution of attention of focus between these two activities. The same author indicates that flow experiences are connected with a certain level of transient hypofrontality (Dietrich 2004: 754) that is, minimal activation of the prefrontal cortex with the simultaneous activation of basal ganglia. Interestingly, addiction has been linked with the state of hypofrontality, which is typified by a sense of compulsion and irresistible urge to do something (Dackis & O'Brien, 2005: 1432; Hilton & Watts, 2011; Nestler, 2005: 1446; Volkow, Fowler & Wang 2004: 8) However, only future research should be able to give a definite answer to this hypothesis.

Performing arts belong to the group of activities (along with games and sports) that Csikszentmihalyi (1988a) has indicated as capable and highly probable to produce flow. Theatre is a performing art *par excellence*, so it is legitimate to consider the capability of drama-related experiences to induce flow. Martin & Cutler (2002) used the Flow State Scale devised by Jackson and Marsh (1996) and originally aimed at investigating flow experiences in athletes. In this study the elements of the scale that had the words 'sport' and 'athlete' were replaced by 'theatre' and 'actor' respectively. The participants in this survey reported on average four flow experiences a year which is number that should be considered with caution since the sample consisted of drama students (both undergraduate and postgraduate) and not professional actors, as more experienced actors might have developed different techniques of achieving similar experiences. Applied theatre practitioner, Zoe Zontou (2012: 310) has attempted to draw connections between the concept of flow experience and her work with an applied theatre team consisting of people with histories of addiction. Zontou (2012) concludes that the overall experience of being in a group theatre can function for the addicted person as 'alternative substance'. Moreover, Gruzelier and others (2010:

115) have identified positive outcomes of neurofeedback on both flow experiences and acting performance quality.

8.4. Stanislavski's psychotechnique

As mentioned previously, one the main challenges in treating addiction and other pathologies is finding ways to invent forms of collective and individual life. Following Stiegler's understanding, contemporary addictogenic society short-circuits sublimation processes with the various psychotechnologies used by mass media in order to aesthetically condition the psychic apparatus, producing a homogeneous effect that eventually reinforces consumerism's hold on social life. Therefore, it becomes more and more evident that what is needed is a process of *invention* that will give birth to alternative forms of collective and psychic individuation. Acting training, being to a certain extent a method of creating alternative lives on stage and on screen presents a promising potential in this direction. This idea brings us to the work of a man who is considered the founder of modern acting training, that is Konstantin Stanislavski (1863-1938).

Stanislavski's influence both in the history of acting (Blair 2002: 179; 2008: 28) as well as in the development of cultural-historical psychology (Dafermos 2018: 175) is hardly open to dispute. Nevertheless, anyone that attempts to approach his thought will face some important challenges. Firstly, spanning a theatre experience of almost five decades, his ideas regarding the optimal process of performing on stage were always subject to change. Secondly, as shown by his translator and biographer Jean Benedetti (1990: x) Stanislavski's publications have themselves an interesting history of procrastination, censorship and faulty translations that permitted rather diverse adoptions of his principles and exercises.

As the director Declan Donnellan put it: 'Stanislavski was obsessed with life' (Stanislavski 2008: ix). In this regard, his understanding of life was inherently related with creativity. Stanislavski's books abound with metaphors of 'building', 'giving birth', 'action', and he considered the state of *'Ya Esm'* (translated by Benedetti as 'I am being') as the ultimate experience of artistic creation, when the personality of the actor and the fictional character merge giving way to subconscious inspiration (Stanislavski 2008: 684). Stanislavski formulated a *psychotechnique* with which an actor, after years of training, could use all the available tools of a performer in order 'to create the life of the human spirit on stage' (Stanislavski 2008: 19). For the diffusion of his 'System', Stanislavski thought appropriate to present his teachings in the form of a student's diary. The book's title has been translated in various ways, but the most recent translation is *An Actor's Work*. The book is composed of diary entries written by Kostya, a fictional student, who attends the

classes of Arkady Tortsov, Stanislavski's *alter ego*. Unfortunately, due to constraints of space, it will not be possible to engage in a long and detailed exposition of Stanislavski's thought here. Instead, I will attempt to focus on three specific aspects of his 'System' that can facilitate a Stanislavskian understanding of an individual's ontogenetic process in relating with their milieu along the nexus of crisis-imagination-transformation. These are: a) his perspective on imagination, b) the conceptualisation of perezhivanie, and c) the dialectic method.

In order to understand how, why and for whom Stanislavski's contribution was and still is so important, it is necessary to consider the problem he attempted to solve. In the numerous times he emphasized his devotion to art in almost religious terms, Stanislavski also reminded his students that his concerns were also concretely practical. It is perhaps for this reason that he often spoke of his method as a 'psychotechnique' (Stanislavski 2008: 22). He strove to identify the best possible mechanism to transform any theatrical performance into a successful one, with success defined as the closest the performance resembles the truth. Benedetti offers a concise description of Stanislavski's vision:

> Stanislavski's mature activity can only be understood if it is seen as rooted in the conviction that the theatre is a moral instrument whose function is to civilise, to increase sensitivity, to heighten perception and, in terms perhaps now unfashionable to us, to ennoble the mind and uplift the spirit. The best method of achieving this end was adherence to the principles of Realism (Benedetti 1989: 11).

With this objective it is easy to guess why Stanislavski's teachings were never fixed, in contrast with the rigidity that the term 'System' implies. If a technique is constantly modified according to its effects, then it cannot be a fixed set of rules and orders. Moreover, as someone approaches Stanislavski, it is important to remember that he was an artist and thought as an artist. Although well-informed about the psychological science of his time, he did not aspire to answer scientific or philosophical questions. Later in the book, Kostya asks 'Isn't that what it is to live and be an actor? Isn't that inspiration?' and Tortsov replies 'I don't know. Ask the psychologists. Science is not my field. I'm a practical man, and can only explain how I experience the creative process at such moments' (Stanislavski 2008: 325).

A fundamental text in drama history which addressed the problem of truth in performance was Diderot's *Paradoxe sur le Comédien*, published in 1830. Diderot's argument—mainly and ironically due to Stanislavski's influence—nowadays seems counter-intuitive. According to the French thinker, the artistry of actors is demonstrated at best when they are able to pretend they

experience what they are supposed to experience. Hence, in Diderot's (1830: 23)[32] view, a great actor is not someone that actually feels what they are expected to feel, but someone that impersonates the character and reacts to the situation that the play sets them in. As Magnat puts it, from this perspective 'a good actor is a good liar' (2002: 165). Diderot's main goal was to challenge the extravagant theatricality that his contemporaries adopted in their performances.

Stanislavski understood quickly that this strategy was not effective given that in its failure to convey 'truth' it involved the use of clichés, which he considered one of the greatest enemies of his art (Stanislavski 2008: 29). In contrast, Stanislavski (2008: 36) understood acting as a process of instilling life to the characters that the dramatist's imagination had born. In other words, Stanislavski constructed an evolving system of principles and exercises that would use the actor's imagination in order to extend the dramatist's imagination but that simultaneously could result in a production of a 'realistic' depiction. This constitutes one of the most significant aspects of Stanislavski's approach. Namely, that he positioned himself beyond the fiction/reality distinction that tantalised theatrical practice until and even after his time and showed that the concept of truth is essential to actor's practice.

Stanislavski had designated a set of questions with which the actor should approach dramatic action. He required actors to pose the 'Six Fundamental Questions' (Stanislavski 2008: 77–85). These were: Who? When? Where? Why? For what reason? and How? The answers for the first three according to the eminent Stanislavski scholar and actress Bella Merlin (2014: 111) can be found in the play or the script and in the factual research around those. The final three require deep engagement with the text, the traits of the characters and creative imagination by the actors themselves. Creative imagination was at the centre of Stanislavski's fundamental concern on how to negotiate between the seemingly contradictory demands for 'truthful' acting and 'artistic' performance. In spite of providing different answers each different period of his life, what was always at stake was the effort to bring 'life, truth onto the stage without falling victim to routine but at the same time remaining, in the true sense, theatrical' (Benedetti 1990: 35). The actors had to rely heavily on their imagination to produce creative and truthful performance. As he put it: 'without imagination you cannot be an actor' (Stanislavski 2008: 64). A fundamental technique towards the cultivation of creative imagination is the use of the structure 'What would I do "if"'. Probably the most famous exercise developed by Stanislavski is the one that the actor should

[32] C'est l'extrême sensibilité qui fait les acteurs médiocres ; c'est la sensibilité médiocre qui fait la multitude des mauvais acteurs ; et c'est le manque absolu de sensibilité qui prépare les acteurs sublimes. »' Extreme sensibility makes middling actors ; middling sensibility makes the ruck of bad actors ; in complete absence of sensibility is the possibility of a sublime actor.' (Diderot 1883[1830]: 17)

imagine what she would feel 'if—and for him 'feeling' was a form of dramatic action—a mentally unstable person with an axe was behind the door of her apartment (Stanislavski 2008: 47). The function of 'if' is so important that Stanislavski's called the magic 'if'. The actor should be able to imagine and live through with her imagination infinite numbers of scenarios.

According to Daniel Johnston (2011: 74) the magic 'if'—along with the broader Stanislavskian perspective—can be understood as a quasi-phenomenological contribution to a process of 'creating a world' that could appear as a possibility on stage. The actor is not obliged to be 75 years old to depict the character of an elderly person or spend some time with her eyes shut in order to perform a blind woman. Stanislavski would suggest a far more sophisticated approach. In the case of portraying a 75-year-old character the actor should have probably asked questions like: 'What would I do "if" my legs hurt so much that I could barely walk?'; 'How would I behave "if" I was taking strong sleeping pills and as a result I was feeling tired?' etc. The actor, and by implication, the creative mind should imagine the structures, the development, and the aspects of another world. This cultivation of imagination aims at neutralizing the effect of established clichés and habits that prevent the expression of creativity by the actor. Importantly, Stanislavski was aware of the ambiguous (or pharmacological) character of habit. He understood the positive, artistic potential of developing new habits but also the counter-productive hold they could have in someone's creativity. For example, Kostya mentions in his diary: 'Oh, no. I can't work on Othello in my room any more. Every nook and cranny there pushes me into doing things I've done many times before' (Stanislavski 2008: 70). Twenty years before this remark, around 1916 (Vinogradskaia 2003; as cited in Whyman 2006: 119), in a speech he gave to actors of his theatre group he said that his task as a director was 'to save nature from actors' habits and conventions of acting which are against nature and pernicious to it. I, like a doctor, will resort to an operation, which regrettably cannot be anything but painful.'

Approaching theatrical activity as technology for enhancing imagination has wider implications in the attempt to integrate theatrical practices in a possible alternative treatment of addiction. The value of art-oriented therapies, and especially the Stanislavskian version I envision, is that instead of the endless rumination and self-depreciation of AA-based treatments, the aim is the facilitation of the necessary intellectual and bodily strategies to make addicted individuals use their imagination to picture themselves as different beings, with different capabilities and with different choices. But in a truly Stanislavskian endeavour, the aim of using the creative imagination should not only be the day-dreaming of a future better life, of different contingencies and different opportunities. Far from it, as a Stanislavskian actor would do, the addict should transform their

creative imagination into action. While the actor should transfer their imagination into *stage action* the addict should transform their imagination into action in the *drama of life* (more on this later).

Indeed, as the anthropologist Gerda Reith (1999: 104) has shown in her studies, addicts tend to lose a sense of a future becoming entrapped in a constant traumatic present. However, similar conclusions can be drawn from disciplines that investigate addiction phenomena with entirely different methodologies. There are indications in some neuroscientific projects published recently that addiction is related with impaired or at least 'problematic' processes usually put under the umbrella of 'imagination'.

A recent study by Moustafa and others (2018: 2979) demonstrated impairment of the ability of opiate users to successfully perform tasks that assess the levels of 'episodic future thinking' which refers to the 'capacity to imagine or simulate experiences that might occur in one's personal future' (Schacter and others 2017: 41). Put more simply, opiate addiction was found to be related with the inability to imagine experiences that could happen in the future. Interestingly, the same finding was not confirmed in a group of participants that exhibited alcohol abuse disorder. According to Schoenbaum and others (2016: 2971) there is evidence that the reduction of the excitability of orbitofrontal cortex induced by drug use causes a disruption of neural circuits that are implicated in imagining future outcomes. Orbitofrontal cortex structures are considered significant in 'thinking outside of the box' and producing estimates of situations in which the individual has no prior experience (Schoenbaum and others 2016: 2967).

Similar hypotheses have led to the investigation of possibly therapeutic impact of thinking future conditions. For example, in a study of cocaine users by Kirschner and others (2018: 493), it was indicated that the use of mental imagery of non-drug-related rewards and a method known as real-time functional magnetic resonance imaging (rtfMRI) neurofeedback was successful in the regulation of specific areas of the mesolimbic dopaminergic system (ventral tegmental area and substantia nigra). This method has also shown promising results in addressing craving feelings in cases of nicotine addiction (Kim and others 2015: 1565) and alcohol-abuse disorder (Karch and others 2015: 12; Kirsch et al 2016: 989). In the study of MacInnes and others (2016) the effects of rtfMRI neurofeedback training activated the ventral tegmental area of participants which increased connectivity in the whole mesolimbic network. If confirmed by future research, the systematic use of imagination of non-drug related situations could constitute a fruitful alternative treatment option for overcoming the urges that are so fundamental in addictive behaviour.

Stanislavski's *An Actor's Work* (2008) includes numerous exercises for the actor, targeting diverse areas ranging from the voice to body movement and from muscular release to achieving a sense of truth. One fundamental aspect of the actor's training was the care towards cultivating the

faculty of attention. Managing and orienting attention constitutes one of the most important psychological processes in the Stanislavskian psychotechnique. The actor has to be able to create 'attention fields' (Clare 2016a: 89)—the famous 'circles of attention' (Stanislavski 2008: 98)—in order to stay focused on dramatic action and convey a sense of truth in front of an audience. Due to specific socio-cultural transformations (Citton 2017: 31) intrinsically related with the consumerist model of capitalist economy, attention becomes one of the core resources of human life to be captured and exploited by the marketing technologies of digital economy. Stiegler in his symptomatology of contemporary forms of living discusses extensively what he calls the 'deficit, if not the total loss of attention' (PFN: 14) where the hyperstimulation of the mental apparatus produces a form of subjectivity characterized by diminished attention span and guided by short-term plans towards instant gratification (Moore 2018: 202). Thus, I claim, Stanislavski's teachings on attention and his emphasis on its necessity for truthful performance might be relevant in an effort to challenge the behaviorally-conditioning and politically-incapacitating mechanisms of the culture industry (Adorno 2020: 101; AD: 23).

The third important aspect of Stanislavski's System for theorizing processes of transformation is to be found in the teaching method itself. Stanislavski should be considered as another instance in the significant wave of dialectical thought which appeared in Russia before and after the October Revolution. It is negativity, as a force of creative development that provides the cornerstone of Stanislavskian dialectics. The amateur actor begins with certain intuitive ideas about acting which are then replaced by failing in the level of performing experience with more sophisticated and complex techniques who are also continuously under revision. This aspect of Stanislavski's thought evident in his concept of 'perezhivanie', a term used to describe the psychological phenomenon/process of experiencing (Veresov 2016: 130).

8.5. Perezhivanie

An Actor's Work begins, as theatre practitioner Marc Silberschatz (2013: 16) has observed, with a 'flow' experience. The experience that the main character (Kostya) had while preparing a scene from *Othello* in his room exhibits a lot of the characteristics of *flow*. The distortion of time perception, the loss of self-consciousness and the perceived match between the challenges of the task and his skills are landmarks of flow experience. Of course, Stanislavski used this episode in order to demonstrate the mistakes that actors make when they are not trained and Tortsov will eventually disagree with Kostya's conclusion that what he experienced 'was indeed genuine inspiration' (Stanislavski 2008: 7). However, Silberschatz (2013: 13) claims explicitly that 'when examining Stanislavski's practices, significant correspondences with flow theory emerge'. These

can be found mainly not in the initial stages of acting training but when the actor reaches what Stanislavski called 'inner creative state' (Stanislavski 2008: 294). For example, Kostya recounts while rehearsing: 'At that moment my head started to spin. I lost myself in the role and didn't know what was me and what was the character' (Stanislavski 2008: 325).

In order to investigate further the homology between the three types of experiences that are described here (*machine zone – flow – inner creative state*) and their significance for addressing addiction it is important to refer to a concept that constitutes the core of Stanislavski's endeavor and in my opinion presents a rich source of ideas about transforming individual and collective forms of life. It is perezhivanie that provides the conceptual Ariadne's thread to theorize how the actor's imagination leads to a truthful performance. Perezhivanie paves the way for the inner creative state which is reached when the actor is becoming one with the role and begins to produce a new form of life. As Tortsov says: 'Experiencing[33] helps the actor to fulfil his basic goal, which is *the creation of the life of the human spirit in a role and the communication of that life onstage in an artistic form'* (Stanislavski 2008: 19; emphasis in the original). In other words, for Stanislavski, 'perezhivanie' is the precondition of and the process through which the artist uses the creative forces of their unconscious and conscious mind[34] to shed light on another horizon of possibility. The inner creative state is reached when the actor is becoming one with the role and begins to produce a new form of life.

Dafermos (2018: 184) notes that the specific concept should not be considered in isolation but that it instead constitutes an integral part of a wider system of ideas about human and societal development in terms of drama born in the context of the Soviet Revolution and the unprecedented evolution of human and life sciences during that period in Russia. First of all, it is important to address the linguistic difficulties that this term poses. The origin of the word 'perezhivanie' is the verb 'perezhivat'. The verb itself is a synthesis of the verb 'zhivat' which means 'to live' and the word 'pere' which means "carrying something over something, letting something pass beneath and overleaping it…" (Blunden 2016: 276). According to Dafermos, there have been various attempts to translate the word in English. It has been translated as 'experience', 'lived experience', 'living through', and Jean Benedetti translates it as 'experiencing' (Stanislavski 2008: 21) with the intention of using the gerund -ing to denote the 'active' and 'temporal' dimension of

[33] Benedetti's translation of perezhivanie.

[34] Although, he always avoided scientific pretentions, preferring to establish practices on his and his students' experience, it is known that Stanislavski was an avid reader of psychological works. According to Benedetti (1990) he owned heavily annotated Russian translations of Théodule Ribot's works while Whyman (2007) claims that it is highly likely that Stanislavski was aware of William James' work on emotion and habit.

it. According to some specialists, the concept of *perezhivanie* is closer to the German word 'Erlebnis' (and 'erleben') (Van de Veer & Valsiner in Vygotsky 1994: 354) while in Spanish the term "perezhivanie" has been translated as "vivencia" (Quiñones & Fleer 2011). Here, in agreement with a growing tendency in academic scholarship we prefer to leave the term untranslated.

The importance that the term 'perezhivanie' had in Stanislavski's 'System' can be guessed from the fact that the word is the subtitle of the first part of *An Actor's Work*. For Stanislavski, 'perezhivanie' is the cornerstone of the actor's creative endeavor. Incidentally, perezhivanie presents a lot of similarities with a theatrical flow experience as Stanislavski describes it as follows:

> thinking, wanting, striving, behaving truthfully, in logical sequence in a human way, within the character, and in complete parallel to it. As soon as the actor has done that, he will come close to the role and will begin to feel as one with it. Here we call that experiencing [perezhivanie] a role (Stanislavski 2008: 19).

8.6. Human development as drama

The most important adoption of Stanislavski's term is without doubt the one which was done by L.S. Vygotsky, who attempted towards the end of his life to conceptualise human development as drama. Although this idea was never explored in depth due to his untimely death, I contend that there is a lot to be gained from considering the Vygotskian version of 'perezhivanie'.[35]As it is shown by his text 'On the Problem of the Psychology of the Actor's Creative Work' (1999) Vygotsky was familiar with Stanislavski's principles and the wider agreement is that the latter was his main inspiration for this theoretical argument. Vygotsky, in spite being deeply interested in the arts and especially drama, was not an artist. His concern, in contrast to Stanislavski's aesthetic orientation, was to provide an account of human development by taking into consideration the historical and cultural conditions that give form to human subjectivity. The fact that he chose this term as one of the building blocks of his theoretical edifice is indicative of the usefulness that Stanislavski's terminology has for disciplines that do not belong necessarily to performance arts.

Possibly, one of the most accessible texts that provide an insight about how Vygotsky understood the term is the one that has been given the title by the eminent Vygotsky scholars Van

[35] According to Vygotsky (1994): 'Perezhivanie is a concept which allows us to study the role and influence of environment on the psychological development of children in the analysis of the laws of development' (Vygotsky 1994:343). For a recent and highly useful account see the edited volume by M. Fleer and others (2017).

der Veer and Valsiner (1994) as 'The Problem of the Environment'. The text is believed to be either a draft prepared by Vygotsky himself for a lecture given in 1935, or the notes that were taken by one of his students. In this lecture, Vygotsky is suggesting:

> the essential factors which explain the influence of environment on the psychological development of children, and on the development of their conscious personalities, are made up of their emotional experiences (perezhivanija). The emotional experience (perezhivanie) arising from any situation or from any aspect of his environment, determines what kind of influence this situation or this environment will have on the child. Therefore, it is not any of the factors in themselves (if taken without reference to the child) which determines how they will influence the future course of his development, but the same factors refracted through the prism of the child's emotional experience (perezhivanie) (Vygotsky 1994: 339-340).

In essence, Vygotsky uses a Stanislavskian term in order to formulate an account of human development as drama. As Rubtsova and Daniels (2016: 189) indicate 'there are strong grounds to believe that Vygotsky's theatrical background had a life-long influence on his ideas' and 'many of the concepts that he introduced into psychology … are rooted in the theatrical tradition'. Perezhivanie serves Vygotsky as a unit of analysis where the cultural-historical environment and the individual subjectivity meet. In the above mentioned text it is claimed:

> an emotional experience [perezhivanie] is always related to something which is found outside the person—and on the other hand, what is represented is how I, myself, am experiencing this, i.e., all the personal characteristics and all the environmental characteristics are represented in an emotional experience [perezhivanie](Vygotsky 1994: 342).

Hence for Vygotsky, developmental psychology constitutes largely the quest for understanding the various mechanisms of perezhivanie. In the Vygotskian system of ideas, perezhivanie cannot be reduced to an affect with the modern conceptualisation of the term following the recent 'turn to affect' (Leys 2011: 434). Despite the similarities—which are worth investigating—and the undisputed influence of Spinoza in Vygotsky's thought (Dafermos 2018: 190), the latter emphasized the characteristics of contradiction and reflective stance of the individual experience.

Given my orientation towards the investigation of an alternative framework of addiction and its treatment it is an interesting coincidence that one example used by Vygotsky to demonstrate his conception of perezhivanie is based on a case of problematic drinking. Vygotsky mentions a

family where the mother is abusing alcohol. This causes different perezhivanie in each of her three children. The youngest one exhibits neurotic symptoms, the second is demonstrating an ambivalent attitude towards his mother and the third and oldest child develops a mature and serious character (Vygotsky 1994: 340). This example demonstrates another basic characteristic of the concept of *perezhivanie*. Vygotsky was adamantly opposed to any kind of reductionism and determinism. He suggested that events with similar characteristics can cause different perezhivanie in those who experience them and the investigation of this indeterminacy was the objective of his 'paedology'.

It is indicative of the extraordinary trajectory that Vygotsky's ideas have followed since his untimely death in 1934 that some of the most interesting aspects of his thought remain known only to a limited number of scholars in stark contrast with the large group of researchers and practitioners that have been inspired by him. A prime example of such an idiosyncrasy is the relatively unknown idea that human psychology should be understood in terms of drama. This idea belongs to a series of reflections that Vygotsky undertook towards the final years of his life regarding processes involved in emotions, imagination and perezhivanie. However, as Fleer, and others highlight (2017: 2) 'their interrelation and definition remained unclear and open to further development.'

The clearest exposition of this—according to Yaroshevsky (1992)—'immature germ' can be found in Vygotsky's manuscript *Concrete Human Psychology* that is dated around 1929. Vygotsky borrowed and tried to develop both the ideas of 'Concrete psychology' and 'life as drama' from the work of the Marxist French philosopher and psychologist Georges Politzer (1994). Politzer wrote his *Critique des Fondements de la Psychologie* around the same period. He attempted from a more philosophical perspective to establish a Marxist psychology. In *Concrete Human Psychology* Vygotsky (1989: 71) says explicitly that 'psychology must be developed in the concepts of drama, not in the concepts of processes.' From the cryptic notes of this manuscript, we can conclude that a fundamental assumption is that social life entails the execution of roles. Most significantly, Vygotsky suggested this epistemological step to the investigation of human psychology because it was clearly faithful to his project towards a dialectical account of subjectivity as a process of contradiction, conflict and negation as well as his life-long interest in theatre. Therefore, Vygotsky did not understand drama as only an artistic articulation of basic human passions but also as an account of how conflicts of social roles, personal characteristics and historical moments functioned as transformative stages.

Despite remaining underdeveloped in Vygotsky's thought such a formulation provides another important aspect in my argumentation. If developmental processes, which involve critical

and co-constitutive encounters of the individual with their milieu, can be conceptualised in terms of drama, then at least it is worth considering the possibility that dramatic art and theatrical culture have the potential to explore, understand and facilitate the invention of new norms in engaging with our milieu.

8.7. Normativity in critical situations

In this dissertation I have examined the idea that every exploration of the life of living organisms is bound to be incomplete, unless it attempts to engage with the question of how this organism relates to its surrounding environment. This methodological priority, painting with broad strokes, is equally prominent in the tradition of cultural-historical psychology. One of Vygotsky's main contributions was the emphasis on creating a dialectical materialist psychology that would address a similar problem, as the important text *On the Problem of the Environment* (1994) shows, namely the individual's development as a constant process of contradictory, non-linear and unpredictable transformation. In this section, I argue that a parallel reading of the psychologist F. Vasilyuk (1991) and of Canguilhem's *Essay on the Normal and the Pathological* (NP), which I explored in more detail in chapter 5, can be propitious in organising the theoretical architecture in which the relevance of theatrical art might be established. More specifically, I intend to show how the concept of 'critical situation' as theorised by Vasilyuk (1991) and the idea of 'normativity' as examined by Canguilhem (NP) should be considered as possibly complementary in exploring the dialectic relationship between crisis and transformation in the process of addiction recovery.

In his book *The Psychology of Experiencing* (1991: 6–7) Vasilyuk attempted 'to investigate from the psychologist's standpoint just what a person does when there is nothing to be done, when he or she is in a situation that renders impossible the realization of his or her needs, attitudes, values, etc'. Apart from its highly original and inventive conception, Vasilyuk's analysis is important for two main reasons. Firstly, a straightforward association between the idea of 'crisis' and the idea of perceived 'impossibility' is observed. As he mentions 'the type of critical situation is determined by the nature of the 'impossibility' state in which the individual is trapped' (Vasilyuk 1991: 35), meaning that the subject considers the forms of engagement with the environment available to them, insufficient to respond and 'cope with the existing external and internal conditions of life' (Vasilyuk 1991: 35). The individual's active response to the demands of the environment that in the past was or seemed theoretically possible, in the given context presents itself as impossible. Secondly, Vasilyuk (1991) identifies the influential concept of perezhivanie (which in his book is translated as 'experiencing') as the central process of struggling and 'working through' disruptions

of life towards a restorative and meaningful actualization of 'life's internal necessities' (Vasilyuk 1991: 29).

Most significantly, for Vasilyuk (1991) *perezhivanie* is a concept that implies a productive but laborious process of transformation inherently related with events of failure and struggle. In his own words: 'If the psychological theory of activity studies, figuratively speaking, the way in which a human being travels life's road, then the theory of experiencing studies the way in which he or she falls and rises again to continue the journey (Vasilyuk 1991: 27). In accord with the philosophical underpinnings of a certain strand of cultural-historical psychology he emphasizes the dialectical nature of these processes suggesting that they involve a 'dialectics of identity (preservation) and metamorphosis' (development)' since 'one cannot emerge from a situational crisis unchanged (Vasilyuk 1991: 51).

At this point it might be appropriate to remind ourselves how Canguilhem's conceptualisation of health and pathology provides an interesting homology with Vasilyuk's work on 'critical situations' and *perezhivanie*. As a philosopher of medicine Canguilhem used an expanded understanding of the norm as the basis of his work on the relationship between the individual organism and their milieu. Canguilhem (NP: 196–7) claims that norm is not a construct to be defined quantitatively according to an average measurement. The condition of health is not a question of normality between two extremes, but it is to be evaluated by the ability of the individual to create their own norms. An individual in a state of health is someone that far from being normal has the capacity to be normative. As he put it: 'Being healthy means being not only normal in a given situation but also normative in this and other eventual situations' (NP: 196–7) in the sense that the individual organism 'establishes norms' (NP: 126–7), as standards and rules according to which it renders itself able to withstand the perturbations of the environment.

The fundamental premise of this argument is that organisms (from the simplest to the most complex) live in environments that are ever-changing, unstable, and unpredictable. Canguilhem used the term 'infidélité' to denote this characteristic of the environment. According to him: 'health is a margin of tolerance for the inconstancies [infidélités] of the environment' (NP: 197). It is worth noting that the 'inconstancy' of the milieu does not only refer to the historical and thus contingent character of human societies and their institutions but to every form of environment. As he put it: 'The environment is inconstant [*infidèle*]. Its infidelity is simply its becoming, its history' (NP: 198).

The parallels between Vasilyuk's (1991: 149) 'critical situation' and Canguilhem's (NP: 122) concept of the pathological leads to us a formulation that is crucial for understanding how ideas from cultural-historical psychology and continental philosophy can illuminate the existential

dimension of addiction and, consequently the place that theatrical training could take in addiction recovery. The ontogenesis of every organism can be understood as the process where significant changes of the milieu constitute 'critical situations' that render existing norms of engaging with this milieu ineffective and require the creation and sustainment of new norms in order to enable the actualization of the life of the organism. Bernard Stiegler, drawing among others from Canguilhem, has claimed that in our era, the 'disadjustment' (PFN: 235–6) between the vertiginous evolution of technical artefacts and the incapacity of human social and psychic formations to create new ways of engaging with their 'inconstant' technical milieu, has rendered the process of individuation impossible. This diagnosis implies the need for a certain pathway out of this impasse. Hence, the central question becomes that of invention and creativity. The value of Vasilyuk's and Canguilhem's theses regarding the dynamics of the reciprocal relationship between the organism and the environment lies in their emphasis on negativity as a creative and transformative force. Life events such as a failure, a struggle and a disease are not to be considered necessarily undesirable but as unavoidable and critical moments of ontogenetic development. Creativity and imagination, thus, occupy fundamental positions in the history of organism's relationship with the environment. Under this framework, as Manolis Dafermos notes: 'a creative action can be unfolded as a part of a subject's endeavour to deal with crises' (Dafermos 2018: 226).

8.8. Transformation and negativity

Clare (2016b) suggests that Stanislavski's narrative is reminiscent of the structure of Platonic dialogues where participants contribute in a reciprocal relationship to discover the Truth. After a process of continuous questioning and rejection of acting habits the actor gets to a certain level of appropriate technique that is not by any means finite since it needs constant work and creativity. Stanislavski's dialectical method brings to mind the famous quote by Beckett (1989: 101): 'Ever tried. Ever failed. No matter. Try again. Fail again. Fail better.' It could be said that such an understanding brings to the spotlight one descriptive and one ethical consideration. Transformation happens in the limits of existing ways of life, in the failures, crises and disappointments that characterize the human predicament. The ethical lesson from this insight is that—as it goes with individual development—, overcoming social challenges requires work, an investment of mental and physical energy in the transformation of the internal and external milieu as a creative response to a crisis.

This brings us to a fundamental question that involves the need to consider the transformation of subjectivity not as a process of adaptation and surrender to the precarious environment of Western societies but as a political and ethical imperative necessary for addressing

humanity's greatest challenges. As Stetsenko (2016: 81) notes there is a tendency in the field of critical and cultural historical psychology, for the purpose of countering the crude individualism of mainstream psychology, to avoid questions of subjectivity and individuality. However, the indivisibility of personal and collective transformation is precisely the characteristic of human life that constitutes—and assigns with unique responsibility—cultural historical psychology as a valuable ally for theorizing the process and promise of world-building.

8.9. Conclusions

The process of addiction produces a psychophysical state of incapacitation that vitiates imagination rendering social and personal change impossible. Thereby, subjectivity is trapped in a traumatic present of generalized nihilism which forecloses every possibility of a future. Nostalgia and numbness replace personal and historical agency. In such times, one might need to be reminded of Mikhail Bakhtin's words that 'nothing conclusive has yet taken place in the world … everything is still in the future and will always be in the future' (1984: 166).

The recovery pathway out of addiction that I propose leads to theories and practices that make the individuals and their groups capable of developing and reconstructing new forms of engagement with their environment. In this chapter, I attempted to show how Stanislavski's 'System', as one of the most influential forms of theatrical training, provides an interesting technique for the invention of new 'superior' norms in response to 'critical situations'.

Moore (2019a: 138), in an attempt to understand the social processes of past and recent addiction epidemics, wrote about the need to create a 'philosophical disposition' with the challenge 'to coax us out of our machine zones, away from both the automation of the nervous system and the anxiety that leads us to take refuge in oblivion'. Stanislavski used the same concept of 'coaxing' to indicate how the actor should approach their imagination. His student had 'forced' his imagination, but instead he should have coaxed it (Stanislavski 2008: 67). There is a case to be made that the dialogue between science and the arts is one of the most fruitful and promising ways to 'coax' addicts and non-addicts out of their repetitious, distorting and entropic *machine zones* and establish life-flourishing modes of individuation.

One is tempted to consider a question put forward by Michel Foucault regarding the aesthetics of existence. In an interview with Hubert Dreyfus and Paul Rabinow, Michel Foucault made the following remark:

> What strikes me is the fact that in our society, art has become something which is related only to objects and not to individuals, or to life. That art is something which is specialized

> or which is done by experts who are artists. But couldn't everyone's life become a work of art? Why should the lamp or the house be an art object, but not our life? (Foucault 1983: 236)

Maybe it is art, and theatre especially with its inherent collective and political character, that can 'coax' humanity towards the transformation of the solidified and life-threatening 21st century global configurations. If individuation can be understood as dramatic—both as the process of human development across the life span and performative—it is plausible to suggest that theatrical education and acting training can be fruitful in the creation of new forms of subjectivity that will become capable to produce new forms of life. Under this framework, then, it is understandable that escape routes out of addiction should be sought in theories and projects that make the individuals and their groups capable of developing and reconstructing new forms of engagement with their environment. My argument is that performance arts can be pivotal in the attempt to construct a different model of addiction treatment that can also reconfigure processes of individual and collective transformation. It is also important to remember that drama-based techniques of recovery as *pharmaka* that are both curative and toxic can always be co-opted and regress towards a psychotechnology of adaptation and not of transformation. Drama, not as individual performance to adapt to the unsustainable pressures intensified by contemporary capitalism, but as a collective project of creativity, can offer the capability of imagining a different future. Under this premise, it is worth noting that, although drama is not *stricto sensu* a form of technics, it is an art form, a *techne* of creating new forms.

Although the framing of theatre and its emancipatory potential has been almost entirely positive in this dissertation, it is worth noting that, as a particular form of social practice, theatre is diverse, polymorphous and adaptable to different motives, arrangements and perspectives. While writing about the cultural industry itself and not about therapeutic projects, O'Brien (2020: 242) mentions that people from affluent and middle-class backgrounds are overrepresented in the employment statistics of theatre and the performing arts. Correspondingly, people from the working class are less likely to choose acting as a profession. This is not necessarily only due to the fact that more affluent individuals have the economic resources to support an employment that is notoriously precarious but also due to the significantly higher social and cultural capital 'which offer them access to networks, along with the confidence that comes from having a sense of place and possibility within an industry staffed and attended by people like them' (O'Brien 2020: 246). Similarly, one could say that theatre-based therapies require a highly specific form of cultural capital (Bourdieu 1986: 243)—as personal dispositions, cultural experiences and educational background—that is not available or even attractive to everyone regardless of class, race, sexuality

and disability. Moreover, it is necessary to recognise that art-based treatments may not be appropriate at early stages of recovery when the individual might be struggling with chaotic substance misuse, homelessness, poor physical health and legal problems.

Theatre has its own history and as a technology of representation it is inherently pharmacological. Theatre has expressed revolutionary passions and inspired modes of resistance against the powers that be. Nevertheless, historians such as Jean-Christophe Agnew (1986: xi) have claimed that theatre was fundamental in the transformation of social relationships that eventually gave early capitalism its very specific form. Agnew supports that theatre did not only mirror relationships that were already formed outside its realm. It also provided a technology of creating 'artificial persons', abstract personas (the 'King', the 'doctor', the 'servant', the 'jester') whose main motivations appeared to be desire for power, conquest and personal gain (Szakolczai 2013: 2). As Agnew (1986: xi) puts it: 'The theater bestowed an intelligible albeit Protean human shape on the very formlessness that money values were introducing into exchange; for such an achievement, spectators were alternately grateful and horrified.' Following Agnew, Szakolczai (2013: 1), in an insightful historical study, indicates that the emergence of the modern 'public sphere' can be traced to the return of theatre as a public spectacle in European societies in the early modern period. Of particular significance was the fact that the principal form of theatre in the early 1500s was comedy and not tragedy (Szakolczai 2013: 4). Thus, the transformative potential of theatre might create new forms of affects, relationships and communities, but that does not mean that theatre necessarily leads to the spontaneous creation of emancipatory or at least non-exploitative social relationships.

Chapter 9: The pharmacological performativity of writing in addiction recovery: A case study

> This diary is my kief, hashish and opium pipe. This is my drug and my vice.
> — Anais Nin(1966[1934]: 325)

9.1. Introduction

In his *Zen in the Art of Writing* (1994) Ray Bradbury assembles essays written in a long period of over thirty years, which nevertheless move across one underlying thread oriented towards his passion, need and motivation to write. From the very start Bradbury confesses: 'Not to write, for many of us, is to die' (Bradbury 1994: xii). Such expressions of passionate attachment remind us of a relationship similar to that between the addict and the addictive substance. If this was not enough, when comparing the practice routine of the pianist with that of the writer, Bradbury (1996) presents writing as a form of immunization that needs to be cherished and updated against the pressures of world's misery:

> A variation of this is true for writers. Not that your style, whatever that is, would melt out of shape in those few days. But what would happen is that the world would catch up with and try to sicken you. If you did not write every day, the poisons would accumulate and you would begin to die, or act crazy, or both. You *must stay drunk on writing so reality cannot destroy you* (Bradbury 1994: xiii, my emphasis).

And like most addictive relationships, not writing could of course have its own withdrawal syndrome:

> For writing allows just the proper recipes of truth, life, reality as you are able to eat, drink, and digest without hyperventilating and flopping like a dead fish in your bed. I have learned, on my journeys, that if I let a day go by without writing, I grow uneasy. Two days and I am in tremor. Three and I suspect lunacy. Four and I might as well be a hog, suffering the flux in a wallow. An hour's writing is tonic. I'm on my feet, running in circles, and yelling for a clean pair of spats (Bradbury 1994: xiii).

Despite their slightly hyperbolic ambience, such formulations of the text as a drug and writing as intoxication capture, in the simplest terms, an idea present in the long history of the complex relationship between the process of writing and the use of psychotropic substances. From de Quincy's *Confessions of an English Opium Eater*, to Cocteau's *Opium* diary entries and from Burroughs' *Junky* to the highly detailed addictology of *Infinite Jest*, some of the most important texts

in the history of modern literature are inspired by and focus on drugs and the question of recovery. The relationship between addiction and writing is not straightforward: some authors attempt to offer a phenomenology of drug use and its consequences, using writing in an epistemic endeavour. For them, the text functions as a record of the lived experience of intoxication. Others are explicit about the function of writing as a form of intoxication in itself. Nietzsche went to such lengths that he pronounced 'intoxication' as 'an indispensable physiological precondition' of any 'art' and 'any sort of aesthetic activity'.[36] However, this relationship has been more or less hidden, almost in the same way an addict downplays the role that addiction has in their life.

One of the few exceptions where textuality and addiction are being discussed openly is the 1991 book *Crack Wars: Literature, Addiction, Mania* by Avitall Ronell (2004[1992]: 10), where she attempts an analysis of 'the pharmacodependency with which literature has always been secretly associated—as sedative, as cure, as escape conduit or euphorizing substance, as mimetic poisoning.' It is in the next page of this work that we find the audacious hypothesis which places addiction at the foundation of modernity: 'What if "drugs" named a special mode of addiction, however, or the structure that is philosophically and metaphysically at the basis of our culture?' (Ronell 2004[1992]: 13). Ronell's insights, presented in a curious mix that comprises of aphorisms, a short commentary on Heidegger and an analysis of Flaubert's *Madame Bovary*, are useful to the extent that they lift the veil of the relationship between writing and intoxication. However, the theoretical investigation of two of the oldest activities of human life, requires further examination, methodological rigor and interdisciplinary framework.

The present chapter will attempt to address certain aspects of this relationship between addiction and textuality. Through a close reading of Jean Cocteau's *Opium* (1990[1930]) I attempt to contribute to the technophilosophical analytics of writing as a performative process through which subjectivity is exosomatized. Drawing from the work of Bernard Stiegler (AD: 56–7), I propose that writing is a technique of exosomatization that provides individuals and communities of addiction recovery the simultaneously symbolic and material ground for self-identification while allowing the articulation of possibilities for self-transformation. Writing allows the recovering addict to articulate their lived experience of intoxication and its consequences. In this sense, writing itself can be intoxicating, transforming emotions, perceptions and anticipations (Nissen 2012: 199) offering structure and coherence in a chaotic world. However, this exercise in self-understanding potentially reinforces addiction as the only source of identification. Instead, writing should

[36] 'For there to be art, for there to be any kind of aesthetic doing and seeing, one physiological precondition is indispensable: *intoxication*. Intoxication has to have heightened the sensitivity of the whole machine, or else there can be no art' (Nietzsche 1998[1889]: 46–47).

function as a *trans/per*-formative practice that facilitates the expansion of the horizon of possibility of a non-addicted self. Thus, therapeutically oriented writing constitutes a pharmacological technology of the self, both curative and toxic, which negotiates the transition between old and new forms of life.

9.2. *Opium*

In a continuum that ranges from condemnation to apotheosis the relationship between writing and intoxication is well-established (Boon 2002: 2). To a certain extent this relationship is usually seen only in one direction: namely, the investigation of the influence of psychotropic substances in literary production. The recent growth of writing-based therapeutic endeavours in addiction recovery (Kreuter 2020; Springer 2006) leads to the adoption of the reverse approach; one that would consider the function of writing as a vehicle to overcome addiction as the last stage of intoxication.

As we saw in chapter 1 and 5, writing itself is the primary form of a technology of the mind, as a mnemotechnology that supplements the faculty of memory but also facilitates the processing of existing ideas, concerns, intuitions and judgments. In a sense, writing is a psycho-tropic technology in the way it records, and during this process, shapes and transforms (turns, *trepein*) the contents of consciousness. With writing, environmental and internal stimuli are given a sign and acquire a position among other signs in a more or less orderly way. Similarly, using psychotropic substances is an attempt to provide order to the stimuli that the organism receives. I would like to investigate how these properties of writing are illuminated by Jean Cocteau's *Opium*.

Among all the fictional and non-fictional accounts of addiction recovery, *Opium* seems to be a curious choice to consider in terms of how it approaches the question of writing and addiction. First and foremost, because Cocteau was never completely free from his addiction to the drug. During his life, according to his biographer, Cocteau required at least seven hospitalizations because of this pernicious habit (Williams 2008: 9). Thus, if there was any therapeutic success connected with his journal writing, this was probably short-term. Secondly, unlike similar memoirs which almost always tend to describe the addictive substance in negative terms, Cocteau has a disproportionately positive perception of opium. Thirdly, the author himself is a complex personality with a multifarious artistic output (literature, cinema, theatre and painting), a fact which makes it difficult to approach the text as an 'ordinary' record of addiction recovery.

Nevertheless, despite being an unsystematic exposition of an addiction, I contend that *Opium* provides a fascinating example of the multiple dimensions of the recovery-through-writing

process. Before we have a closer look on the text, I would like to present the context of its composition, hoping that in this way some of the problems caused by its fragmentary nature can be overcome.

Jean Cocteau (1889–1963) was without doubt one of the most enigmatic, creative and idiosyncratic artists of the 20th century. A poet, playwright, novelist, designer, filmmaker, visual artist and critic, Cocteau explored almost every artistic medium in order to express his complex relationship with himself and with the world. As a prominent member of the French avant-garde, he befriended other artists of that period (Proust, André Gide, Picasso, Raymond Radiguet, Raymond Roussel) establishing rapports of mutual influence and collaborations. Interestingly, *Opium* is not one of his most important texts, although it was written in perhaps the most critical period of his life. As the author informs the reader from the very beginning of the text: 'These drawings and notes date from the clinic in St. Cloud (December 16th 1928 to April 1929).'[37] Therefore, the book records his second attempt to overcome his addiction, as Cocteau was already smoking opium with his friends before 1920. However, it was the death of his friend (and as some argue romantic partner) Raymond Radiguet in December 1923 that first led Cocteau into the spiral of addiction. Cocteau later described the loss as an 'operation without chloroform.' In 1925 he spent six weeks in a Paris clinic in an attempt to cure his addiction, making the claim, noteworthy for my analysis, that he would never write again and instead dedicate himself to drawing. However, this attempt was unsuccessful. After a short creative period, he accepted a friend's (none other than Gabrielle 'Coco' Chanel) offer to undergo a long detoxification process in St. Cloud. Within a week of his arrival at the clinic in Saint-Cloud, Cocteau was already charting his experiences in the notebook that would eventually be published as *Opium: The Diary of his Cure* (*Opium: journal d'une désintoxication*). Already from the original title and its English translation we can detect a tension between the different goals of addiction recovery. While the French title conceptualises the process of his hospitalization as a detoxification, the translator chose to use the term 'cure' which conveys a later state where addiction could be seen as 'treated'. As one reads the notes, they would find numerous other interesting ideas about the causes of addiction, the pharmacological properties of opium smoking, the role of the medical profession, and, finally, the function of writing in Cocteau's recovery. Here I would like to focus on three main questions that Cocteau intentionally or unintentionally explores: 1) What makes the use of opium so appealing? 2) How does one become addicted? 3) Why is writing so important in his recovery?

As mentioned earlier, unlike other memoirs of addiction recovery, in Cocteau's *Opium* we rarely identify a negative attitude towards the drug itself. One would be tempted to guess that

[37] The published text includes entries from 1930 too, which were added at the proof stage.

maybe this was the primary reason why, despite all the attempts to cure his addiction, Cocteau never became abstinent for long periods of time. From the first page, the author claims his neutrality towards the drug itself: 'Here the Public Prosecutor rises. But I do not give evidence. I do not plead. I do not pass judgment. I merely produce documents, for and against, in the trial of opium' (OPI: 18). However, in this trial, opium seems to be a substance with excellent qualities. Apart from the opium-induced feeling of euphoria, Cocteau (OPI: 24) does not fail to recognize the self-medicating qualities of the drug:

> It seems to me that on an earth so old, so wrinkled, so painted, where so many compromises and laughable conventions are rife, opium (if its harmful effects could be eliminated) would soften people's manners and would cause more good than the fever of activity causes harm.

Thus, opium smoking appears to be a technical prosthesis which supposedly transforms not only the individual's perceptions, emotions and behaviours but has also the capacity to influence how people interact. In a way, Cocteau proposes a theory of drug use as psychotropic prostheticisation where drugs act like *pharmaka* that improve existing capacities of affect-regulation and simultaneously undermine the possibility of creating other ones. He describes the 'drama of opium…as none other the drama of comfort and the lack of comfort' (OPI: 30). For Cocteau, 'comfort kills' while 'lack of comfort creates'. A healthy opium habit would be one where the user is able to 'escape, within the domain of the spirit, from the stupid worries of life' without 'yielding to the absolute comfort which it [opium] offers' (OPI: 30).

As he writes:

> I therefore became an opium addict again because the doctors who cure—one should really say, quite simply, who purge—do not seek to cure the troubles which first cause the addiction; I had found again my unbalanced state of mind; and I preferred an artificial equilibrium to no equilibrium at all. This moral disguise is more misleading than a disordered appearance: it is human, almost feminine to have recourse to it (OPI: 20).

Cocteau's addiction seems to be more like a failure of medicine rather than an intrinsic property of the drug. Anticipating Stiegler's pharmacology, he claims: 'I remain convinced, despite my failures, that opium can be good and that it is entirely up to us to make it well-disposed. We must know how to handle it' (OPI: 29–30). Elsewhere he warns the reader: 'Do not expect me to be a traitor [to opium]. Of course opium remains unique and the euphoria it induces superior to that of health. I owe it my perfect hours' (OPI: 24).

It is interesting that only later in the notes we see Cocteau's attitude toward the drug change. He starts considering the physical symptoms of opium use:

> The smoker no longer suffers from changes in the weather. He never catches cold. He suffers only from the changes in drugs, doses and hours, in everything in fact which influences the barometer of opium. Opium has its colds, shivers and fevers which do not coincide with cold and heat (OPI: 74).

Even after detoxification, according to Cocteau (OPI: 74) 'there exists…outside alkaloids and habit, a sense for opium, an intangible habit which lives on, despite the recasting of the organism' (OPI: 74). In a beautiful phrase the recovering addict is depicted as living with a ghost of the drug he used to consume. A drug which 'at certain hours haunts the house' (OPI: 74). During the process of recovery Cocteau paints opium in less bright colours. Among others, we find the metaphor of opium as 'femme fatale' (p. 58) and as a jealous 'exacting mistress' (p. 55). A few pages later (p. 58) he blames medicine for not knowing 'how to distinguish between the curative and the destructive properties of opium.' Destructive properties are now attributed to a substance which in the beginning of his recovery was the cause of his 'finest hours.' Opium smoking 'becomes serious to the extent … it affects the nerve centre which control the soul' (p. 59). The belief in the omnipotence of opium is substituted by a scepticism about its poisonous properties. Cocteau writes:

> Opium is a decision to be taken. Our only error is wanting to smoke and to share the privileges of those who do not smoke. It is rare for an addict to forsake opium. Opium forsakes him, ruining everything. It is a substance which escapes analysis—living, capricious, capable of turning suddenly against the smoker. It is the barometer of a diseased sensibility. At times when the weather is humid, the pipe drips. If an addict goes to the sea-side, the drug swells and refuses to burn. The approach of snow, a storm or the mistral, destroys its efficacy. Some noisy surroundings can take away all its virtues (OPI: 54).

It is difficult to confirm or reject the hypothesis whether Cocteau's note-taking is responsible for his partial re-evaluation of opium's properties. His biographer claims that a significant factor in his recovery was his correspondence with the Catholic philosopher Jacques Maritain (Williams 2008).

Nevertheless, I consider Cocteau's writing and drawing activities as technical prostheses which allowed him to express and, through the process of expression, rethink the complex

parameters of his opium consumption. As one reads in the book, he started writing almost immediately after his admission. His nurse says to him: 'You are the first patient whom I have seen writing on the eighth day' (OPI: 24). Writing his notes 'between six and seven in the morning' (p. 25) Cocteau sees his record as a necessary ethical gesture which preserves the truth of his current lived experience: 'In two weeks despite these notes, I shall no longer believe in what I am experiencing now. One must leave behind a trace of this journey which memory forgets' (p. 25). Later in the book we read the assertion that he records "word for word the transparent absurdities of morning drowsiness' (p. 122). In this sense, the author remains loyal to his promise that he will 'merely produce documents, for and against, in the trial of opium.'

This activity, however, is not a pleasant one. Instead, writing is described as an extremely difficult process which requires practice and a considerable amount of pain. Cocteau informs the reader that 'a writer develops the muscles of his mind. This training leaves hardly any leisure for sport. It demands suffering, falls, laziness, weakness, setbacks, exhaustion, mourning, insomnia, exercises which are the reverse of those which develop the body' (OPI: 127). Elsewhere he refers to the 'tiresome habit of writing' (p. 90), an activity which one should be cured from.

Interestingly, as the process of recovery continues, his references to opium become less abundant and mentions of Cocteau's famous friends (Proust, Roussel, Picasso) and his thoughts on contemporary poetry and cinema proliferate in the notebook. It seems that, in Cocteau's case, part of the therapeutic process consists in repurposing the tools of recovery towards activities that are beyond the addiction itself. Writing about addiction allows Cocteau to reframe his use of opium and eventually orient his attention on to other interests, a form of progress and a desired outcome of addiction recovery. It could be said that a combination of medical treatment, spiritual guidance from Maritain, and his own reflexivity mediated by writing, transformed Cocteau's relationship with opium, allowing him to slowly and tacitly regain his primary creative powers. During this time, one of the most difficult periods of his life, taking advantage of the uninterrupted solitude of the clinic, Cocteau managed to compose in just three weeks his novel *Les Enfants Terribles*. As the translator of *Opium* testifies:

> [Cocteau] 'brought so much work out of Saint-Cloud that some critics in France were sceptical about both the addiction and the cure; they thought that Cocteau had dramatized his reliance on the drug and his withdrawal from it, for he seemed all the time to be in control of the situation' (Crosland in OPI: 16).

9.3. A Stieglerian reading

Cocteau's writing as a process of self-transformation is reminiscent of Bernard Stiegler's experience during a five-year long confinement in the 1970s. In contrast with Cocteau, who always remained ambiguous towards the technology of writing, Stiegler unequivocally considered writing as the primary technique of his self-reinvention until the end of his life. His extraordinary time in prison was marked by an ascetic practice, which he has described in two of his books: *Acting Out* and *The Age of Disruption*. In the latter, one reads:

> I assigned myself a μελέτη that, as a 'technique of the self', defined for each day the hours at which, over the course of weeks and months, I invariably obliged myself to read, annotate, comment and finally write, and then to read again (AD: 215).

Stiegler transformed the cell of his confinement into what he called a 'phenomenological laboratory' which allowed him to study a series of philosophical works and start an endeavour in self-transformation. In order to explain how writing facilitated this process I will try to briefly refer to the way he incorporated and expanded Husserl's concept of primary and secondary retentions.

In Husserl's time the cognitive distinction between short-term and long-term memory was not prevalent. Thus, there was a philosophical problem in distinguishing experiences of the present that were immediately memorized at the time of their perception (just-past), and those experiences that had happened in the past. Husserl's distinction between primary and secondary retention provided a solution to this problem (Husserl 1991: 37). Primary retention refers to the process of perceiving and memorizing, which is nonetheless a process of selection since we retain only a small percentage of what we actually see, hear or touch. Secondary retention can be described by the traditional notion of memory, as it includes the recollection of phenomena of the past. However, it is secondary retention (the process that constitutes the individual's past) that shapes primary retention. For this reason, the processes of primary and secondary retentions are informed by a process, termed protention, that could be described as expectation (Husserl 1991: 89).

For Husserl, phenomena take place *in* time. The individual perceives objects as they are part of a flux, that is, as they flow in time. Accordingly, the object of perception is a temporal object. An example, used by Husserl himself, is necessary to discuss this significant process: the perception of melody. From a naturalist point of view, what we perceive when we hear a melody is sound waves which, when they fall into a wavelength perceivable by the human brain, are retained as notes. The individual notes are temporal objects as they flow in time, and even the melody as a whole is a temporal object. When someone hears a melody, their consciousness is synchronized with the time of the melody (TT2: 199) and they enter into a process of primary

retention of the individual notes. Every note leaves a trace of its passing, while the individual anticipates the following note. Since someone who has already heard other melodies in the past expects to hear specific sequences of notes (protention), each individual's perception is different. Therefore, the recollection of experiences and phenomena of the past (secondary retention) transforms the way the consciousness pursues primary retention. Stiegler adapts this idea to the 20th century industrial reproduction of temporal objects (music, cinema, television), which transforms the processes of primary and secondary retention: the temporal object becomes industrial temporal object, capable of being reproduced endlessly and perceived by millions of consciousnesses at the same time.

Stiegler theorises technics as a third form of retention or what he terms 'tertiary retention'. What is meant by this term is that secondary retentions, instigated by primary retentions (TT2: 223), are exteriorized and are no longer part of the singular individual's mind but belong to the collective consciousness. Writing, therefore, could be classified as a fundamental instrument in the exteriorization of tertiary retentions. Furthermore, as the primary form of mnemotechnology, writing facilitates the transition from retentions to protentions, a Husserlian term adopted by Stiegler to indicate the temporal dimension of desires, expectations, volitions and will. It was through this process of note-taking that the reorganisation of his sensory and intellectual input became possible, allowing Stiegler to form protentions, which expanded his horizon of possibility. He failed, however, to acknowledge that he eventually became addicted to writing, a condition evident by his belief that his 'psychic suffering' (AD: 218) was necessary for the creation of his 'hypomnesic tertiary retentions'. Given that Stiegler's thought is founded on the idea of pharmacology, it seems a great irony that he missed the addictive properties of writing, the original *pharmakon*.

One of the first who attempted to approach this function of writing was Michel Foucault. In a text titled 'Self Writing' composed towards the end of his life, the French philosopher investigates the place of writing in what he termed 'technologies of the self', a concept that I examined in Chapter 7. Foucault (1988: 19) investigated how writing came to be a technique of taking care of the self (*epimelesthai sautou*). Foucault's claim is that in a similar fashion that one acquires a technical or professional skill with practice and exercise, one also learns the art of living, which will be acquired by askesis, the training of the self by oneself. This idea can be found in all the important schools of thought in antiquity such as the disciples of Pythagoras, Socrates and the Cynics. For Foucault, epimelesthai meant taking definite and purposeful steps; practices that are oriented towards the improvement of one's health and well-being. As he writes in 'The Technologies of the Self' the activities of self-care 'involve the progressive consideration of self,

or mastery over oneself…through the acquisition and assimilation of truth…, a set of practices by which one can acquire, assimilate, and transform truth into a permanent principle of action' (Foucault 1988: 35). This training included various practices that one often sees in monastic life (abstinence, memorization, self-examination, mediation, silence). One practice that, according to Foucault, later become more dominant was writing.

In his text on self-writing, Foucault identifies two primary categories: *hupomnemata* and letters or correspondence. The first, as I mentioned in Chapter 7, were memory aids functioning as 'a material record of things read, heard, or thought, thus offering them up as a kind of accumulated treasure for subsequent rereading and meditation' (Foucault 1997[1983]: 209). And, while the *hupomnemata* served as a memory aid, their more important role was to serve as a 'framework' (210) of ascetic practices. Although they were personal in nature, Foucault claims that:

> they do not constitute a "narrative of oneself" […] their intent is not to pursue the unspeakable, nor to reveal the hidden, nor to say the unsaid, but on the contrary to capture the already-said, to collect what one has managed to hear or read, and for a purpose that is nothing less than the shaping of the self (Foucault 1997[1983]: 210-211).

An important exponent of this practice was Epictetus who despite preferring oral teaching indicated with particular benefits of writing as a mnemotechnology. In Epictetus' texts writing is connected with 'melete', an exercise of thought on itself with the aim to reactivate what it already knows and in the process reflect on it. Interestingly, this suggestion is associated with the concept of 'gumnazein' which means to train oneself. As Foucault writes 'gumnazein here refers to 'training and trial in a real situation-a labour of thought, a labour through writing, a labour in reality'. Accordingly, writing has an ethopoietic function: 'it is an agent of the transformation of truth into *ethos'* (Foucault 1997[1983]: 209).

9.4. Conclusions

Writing as a technique of the self is embedded with an ambiguous pharmacological performativity, the ability to solidify through materialization of signs a thought, an emotion, a motive but also to transform, destabilize and deterritorialise dominant sociocognitive processes. As Nissen (2021: 13) mentions, it is the destiny of the sign to 'spatialize temporality in conventionally established ways' as it 'externalises action' in a process of objectification so that actions confirm to convention. But at the same time 'signs can also "object"' to existing norms widening the horizon of possibility. The question then for the place of writing in addiction treatment becomes to what extent one can

negotiate these two tendencies and integrate them into an ethico-political program of self-transformation. Writings performs, and in the process of doing so, it transforms.

However, this brings us to a bigger problem. We are often oblivious to the idea that an active resistance to the contemporary hyperconsumerist destruction of collective institutions and modes of living presupposes a consideration of the individual person and their capacity for change. In other words, living and working in a culture of rampant individualism prevents us from engaging with the ethical dimension of achieving personal change without endorsing a neoliberal worldview. It is no coincidence that nowadays the question of self-transformation has become monopolized by professionals working in life-coaching and other branches of management. Despite being misguided, this question should be taken seriously and not rejected *in toto*.

Writing therapy occupies a special place in this struggle, given that it requires commitment, reflexivity and an openness to the future, processes that a socioeconomic configuration marked by the consecration of greed, the loss of critical thinking, and the replacement of dreams by algorithmic automatisms has rendered almost obsolete.

Chapter 10: Conclusions

10.1. Summary

This dissertation attempted the first systematic exploration of the phenomenon of addiction from a technophilosophical perspective. I chose to use the term 'addiction' throughout the thesis because, despite its problems, this word applies generally to repetitive, habitual behaviours that have negative consequences without distinguishing between 'substance-use disorders' and so-called 'behavioural addictions'. Also, 'addiction' encompasses aspects of the addict's experience (such as 'cravings') that are beyond the umbrella of clinical phenomena identified with the word 'dependence', which still remains a term fraught with a mind-body dualism that overlooks the social and relational aspects of an addicted lifestyle. Terms such as 'dependence' and 'substance-use disorder' reduce addiction to a 'clinical' entity, while I wanted to present the phenomenon as a condition that is not only the object of the biomedical sciences. Scientists and social theorists have produced remarkable research on the addictive potential of digital technological objects, which have colonized every aspect of our lives. This line of work is informative and increasingly relevant for any attempt to examine the possibilities and impossibilities that technological transformations bring in contemporary societies. However, while studying the relevant scientific literature, it became apparent that it was necessary to proceed with following a reverse strategy: that of theorizing all forms of addiction from a technological perspective. The main advantage of this strategy is that by introducing the technological condition in the phenomenon of addiction, it becomes possible to partially transcend the binary oppositions (nature/nurture; biology/culture; individual/collective) that have dominated addiction studies for decades. An examination of the function of technological artefacts demonstrates their critical mediating role in how individuals, and entire communities, become addicted to substances and activities that no longer provide any of the benefits experienced during the first instances of their consumption.

It could be argued that a similar position is expressed implicitly in the 'Brain Disease Model of Addiction' (BDMA), an approach whose limitations I attempted to showcase in various parts of the text. Would it be wrong to say that the way proponents of the BDMA frame the addictive effect of psychotropic substances, as 'high-jacking' the neural substrate of the individual, reminds us of the toxicity of the technological *pharmakon*? Indeed, in a sense these two readings exhibit some similarities in the way the 'substance' or the 'activity' is portrayed as an agent of psychobiological change. The critical difference is that the BDMA fails to capture the important role that environmental (both evolutionary and social) factors play in the development of addiction; a technophilosophical account of the phenomenon attempts to resolve this limitation.

On the contrary, environmental accounts largely neglect the neurobiological mechanisms involved in the process of addiction, focusing on the impact of socioeconomic determinants and historical injustices that certainly have a considerable influence of how individuals and communities become devastated by the proliferation of various addictions.

Thus, the interdisciplinary project developed in this dissertation attempted to integrate two different arguments about the genesis and process of addiction. The first argument, espoused mainly by physicians, psychiatrists, and psychologists, frames addiction as a 'disease' that can be accounted for in the neurophysiological adaptations caused by the chronic exposure to an addictive substance/activity. From this point of view, the attention of researchers is focused on examining the transition from use to addiction, mainly the various ways that addictive substances and behaviours impact the circulation of natural neurochemical molecules in the brain, producing specific forms of neuroadaptation that constitute addiction as 'a chronically relapsing disorder' (Koob & Volkow 2010: 217). The second argument presents addiction as a form of adaptation to the effects of various environmental stressors with special reference to the multiple ways that trauma, lack of opportunities, and socioeconomic deprivation lead people to seek relief in addictive pursuits (Proudfoot 2019: 195). In light of this approach, addiction could be attributed more to the impact of adverse socio-economic background (Hasin and others 2007: 833), attachment impairments (De Rick and others 2009: 108) or pre-existing mental disorders (Khantzian 1997: 235) rather than the 'hijacking' of the brain's pleasure and reward systems by substances or behaviours. While both arguments have their merits, most researchers have treated them as mutually exclusive, mainly because these two perspectives imply different points of reference, they promote different methodologies of investigating the problem and they have different priorities in terms of treatment. This schematization is inevitably general and admittedly fails to include the multiple, complex, ontological and epistemological differences and nuances between and within the two approaches on addiction. My approach was to consider certain aspects of these arguments and integrate them in a technophilosophical account of addiction structured around the concept of psychotropic prostheticisation, which incorporates biological and historical evidence regarding the consumption of psychotropic substances illuminated by Stiegler's philosophical theory. Far from constituting an aberration observed only in a minority of cases, the use of psychotropic substances has accompanied, influenced, and transformed the course of human history, leading to the conclusion that it is impossible to imagine the genetic and behavioural characteristics of our species without considering the role that these substances have played in shaping them. Stiegler's contribution in conceptualizing this 'prostheticity' as part of anthropogenesis allows us to avoid

the demonization of specific substances and behaviours, while still recognizing their addictogenic potential.

The process of psychotropic prostheticisation, as every form of technics, is inherently susceptible in automating the psychobiological system that it supports. The use of psychotropic substances and behaviours offering a faster, less cumbersome, and more direct effect on processes of affect regulation and performance, renders the already existing or theoretically possible coping mechanisms based in non-substance-related forms of prostheticity (such as peer-support, recreational activities, etc.) less available and less developed. With prolonged use, the individual needs psychotropic prostheticity not only to sustain environmental pressures but also to recover from the psychological and—often—physiological symptoms of withdrawal. The phenomenon presents itself in a more intense form in societies, like our own, where important elements of economical and political power function by promoting the process of automation, through a combination of consumerist short-term pleasures and deprivation of collective agency to address environmental stressors. It is necessary to clarify, again, that the process of automation does not imply that the entire behaviour of the individual becomes automatic. Addicted individuals retain to a certain degree the ability to choose otherwise, but for various reasons they are drawn to the psychotropic prostheticity of substances and behaviours, even when their toxicity has reached destructive levels. In a sense, the process of psychotropic automation is homologous with the process of automation in other areas of life, like the production of consumer goods which can be equally beneficial in making products available to a larger number of people but also toxic in its production of waste and environmental disruption. Thus, automation in itself is not necessarily a destructive process. Indeed, automatizing aspects of our affective and bodily regulation permits the allocation of mental and physical resources in productive and meaningful tasks, other than simply responding to environmental demands. If psychotropic prostheticisation can be both curative and toxic, how do we conceptualise the emergence of addiction?

It is common to approach the state of addiction in quantitative terms, establishing its diagnosis on the basis, for example, of how many alcoholic units are consumed per day, or the amount of money spent on procuring the substance. Although these details are important, they fail to capture the existential and phenomenological particularities of addiction, since individuals get addicted to different pursuits, following different pathways and coming from different backgrounds. In this project, I applied an alternative criterion to consider the transition from psychotropic prostheticisation to addiction. Georges Canguilhem's (NP: 197) concept of the norm allows a conceptualisation of addiction as a pathology of how the individual relates to their milieu. While we all create norms in our relationship with the environment, responding to its demands

and transforming it in order to increase our chances of flourishing, in a state of addiction one fails to create new, 'superior' norms, making themselves the vehicle for the perpetuation of addiction. The application of this criterion indicates that I have to respectfully disagree with Stiegler's idea that addiction can be 'positive' as in the experience of love. This idea, mainly due to Stiegler's idiosyncratic appropriation of psychoanalytic concepts, fails to distinguish between addiction as a form of automation and the experience of passionate attachment towards an object, a cause, or a person. Indeed, the intensity of addictive urges often reminds us of passionate attachment, but the two concepts are not identical, only partially overlapping. If we accept that addiction can be approached as the state where the individual can no longer create new, 'superior' norms in their relationship with the environment, which is under constant change, then addiction cannot be considered positive. One could argue that the process of addiction is associated with the creation of norms. The addict establishes new routines and habits that transform their relationship with the milieu in order to continue their addictive pursuit. However, these norms cannot be considered 'superior', as confirmed by the numerous harmful consequences following addiction and the often-expressed desire of addicts to discontinue this behaviour. The addicted individual loses the capacity to respond to the demands posed by the environment, a condition that cannot be associated with a 'positive' state of health. It is important to consider, nevertheless, that a form of automation can be more 'positive' than others. Indeed, as I attempted to show in Chapter 7, the recovery paradigm of Alcoholics Anonymous (AA) and similar groups, to a certain extent, replaces the automation by substances with the automation by the 12-steps way of life. Still, even more 'positive' forms of automation refuse to engage with questions of transforming the addictogenic environment that partially led to addictions in the first place. Recovery becomes an individual pursuit, although it is mediated by the 'group'.

A fundamental idea at the start of this project was that addiction largely constitutes an attempt towards adaptation to stressful environments. The perspectives offered by Alexander (2008) and Moore (2018) are examples of this view. Alexander (2008) perceives addiction as a form of adaptation to the dislocation caused by societies rampaged by 'free market' ideology, while Moore (2017a: 72) associates the proliferation of addictions (such as the opioid epidemic and digital addictions) with the *disadjustment* between the current stage of technological evolution and social organisation. Although I find these approaches necessary for a conceptualisation of addiction that considers to an appropriate extent the impact of environmental factors, it is also important to examine the ways capitalist economy historically has promoted specific types of norms in how people interact with their environment, rendering addiction not only a prevalent form of adaptation but also a dominant mode of existence. In other words, capitalism is

addictogenic not only because it has often led vast numbers of people to poverty, dislocation, and despair, but also because it operates by transforming the relationship they have with their environment, depriving them of the capacity to create norms that are not based on consumption. In capitalism, psychotropic prostheticisation becomes toxic not by accident, but because the system's operating principle is the creation of addictive habits. From this point of view, the addictogenic properties of current ways of life do not exercise their impact only on people suffering from substance abuse, but also on larger groups of people who, deprived of meaningful individual and collective pursuits, seek relief and distraction in digitally mediated *machine zones*.

The quest for the invention of new, 'superior' norms in overcoming addiction made apparent the necessity for an engagement with the current treatment paradigm. Given time and space constraints for the completion of this project, it was not possible to engage in a long and thorough investigation of various treatment models. I chose to consider the philosophical principles of one of the dominant modes of recovery practices, the one promoted by AA and other 12-step groups, primarily due to the historical influence that they have had on addiction treatment but also because their techniques of recovery allow us to think addiction in technophilosophical terms that do not necessarily imply the presence of a specific technical object, but also a 'technology of the self'. I used the concept of 'autonomy' as a guiding thread in examining the AA-paradigm. Interestingly, this concept touches upon two different issues related with addiction recovery. First, the question of whether the state of addiction can be conceived as a loss of autonomy, and secondly, whether a supposed loss of autonomy justifies the interventions based on compulsory treatment. As I showed in Chapter 6, a close reading of arguments regarding autonomy in addiction, indicates that there is a disagreement about the extent to which addicted individuals retain the ability to function autonomously. According to some (e.g., Caplan 2008: 1919), the compulsive characteristics of addictive behaviour indicate a loss of autonomy, while others (Foddy & Savulescu 2006) point to the addicts' ability to make certain choices about their consumption of the psychotropic substance as an indication that addiction does not imply loss of autonomy. I agree with Levy (2006b: 427) that addiction impairs autonomy without depriving the individual's ability to choose differently. However, it affects their ability to resist compulsive urges for an extended period of time. Different takes on questions of autonomy guide different approaches with regard to compulsory treatment: some scholars justify it as a further suspension of autonomy in order to regain it in the long-term; others, on the other hand, consider it a problematic practice that cannot be promoted on the grounds of autonomy, even if it can be justified according to other criteria. While there are bioethical problems in the uses of compulsory

treatment, it is important to remember that this type of intervention might be in certain circumstances the only alternative to incarceration.

AA attempts to resolve the question of autonomy by devising a complex system of automating the recovery process. More specifically, the AA programme attempts to overcome the impairment of autonomy partly by introducing the idea of a 'Higher Power' as another agent in the relationship between the individual and the substance, and partly by regulating with simple, pragmatic, and comprehensive guidance the conduct of its members. Parrhesiastic storytelling, praying, slogans and the restriction of a temporal horizon of recovery, through AA's insistence on the 24-hour cycle (Valverde 1998: 135), seem to provide some therapeutic outcomes, despite the criticisms levelled against the organisation regarding its effectiveness and its antiscientific stance.

However, the main limitation of the approach espoused by 12-step groups is their refusal to engage with broader questions regarding the socioeconomic determinants of addiction. In order to address this problem, I attempted to envision a recovery process that aims towards individual and collective transformation. In this effort, I considered the potential of theatre and other performing arts to initiate transformative practices, conceptualised through the paradigm of cultural-historical psychology. Understanding life as drama, a creative process of overcoming critical situations through the invention of new, 'superior' norms, I discussed Stanislavski's principles of acting training as an example of how theatrical arts can initiate the investigation of different modes of existence. Similarly with the AA-paradigm, a *dramatic* recovery can only be a collective endeavour. The important difference being that, instead of the constant rumination about the problems of addictive lifestyles that is practiced in 12-step groups, a theatre-based approach would attempt a broader process of recapacitation, allowing the individual to experience the possibility of transforming themselves and their environment.

10.2. Limitations

I consider the unsatisfactory engagement with empirical research on the lived experience of addiction, as the greatest limitation of the thesis. This limitation can be attributed to my prioritisation of the examination of addiction theories with the aim to address long-standing conceptual problems. While there are studies that explore similar questions with a focus on technologies, objects and environments of addiction (primarily published in the journal *Contemporary Drug Problems;* see also the work of Emilie Gomart 2002: 534; 2004: 85) the empirical research on addiction grounded on a technophilosophical point of view is still nascent.

A significant part of the research required for this dissertation was conducted before the outbreak of the COVID-19 pandemic. Perhaps, an examination of the impact that the pandemic itself, as well as the measures taken to prevent the spread of the virus, had at a global level would lead to a different dissertation. From the first months of the pandemic, leading authorities in addiction medicine, such as Nora Volkow (2020: 62) and George Koob (Koob and others 2020: 1035), published opinion pieces warning that measures of social distancing would put at greater risk of relapse those that are in recovery, as well as lead others to consider consuming psychotropic substances to cope with overwhelming feelings of stress, fear and grief. The first studies estimating the patterns of consumption of psychotropic substances have presented inconclusive results in terms of whether the pandemic has affected positive or negative changes. According to Finlay and Gilmore (2020: 1), during periods of lockdown, a behaviour of stockpiling alcohol beverages with the aim to drink at home was observed. In USA, surveys indicated statistically significant increases in alcohol consumption after the imposition of curfews (Barbosa and others 2020: 342). However, a different trajectory was noted in Europe, where alcohol consumption declined during the first period of the COVID-19 pandemic, apart from Ireland and the United Kingdom where increases were observed (Kilian and others 2021: 3375). The pandemic illuminates at a global level an important question regarding addiction, namely whether decreased availability of substances and opportunities to consume (closure of pubs, clubs and other venues) affect—and to what extent —the patterns of consumption, especially when environmental stressors increase in prevalence and intensity.

Undoubtedly, adapting to the measures taken to contain the pandemic increased our reliance on digital technologies, intensifying a process that was already underway. According to a study conducted in China, the pandemic led to increases in time spent for recreational use of Internet, and a large percentage of the participants reported increases in the severity of Internet addiction (Li and others 2021: 395). In another study—with a significantly smaller sample—noticeable increases in Internet use were observed during the first months of the pandemic, as well as increased rates of relapse to alcohol abuse and smoking (Sun and others 2020: 2). It is difficult to predict the various ways the pandemic will continue to exert its effects on the psychosocial coordinates of people's lives and attempt a theorization of these processes through the framework proposed in this dissertation. One could argue that by its sheer magnitude and intensity, the pandemic would lead to the creation of new norms in how people relate to their environment. However, it is not easy to clarify the direction and the nature of these norms.

Another important limitation of this project is that, due to constraints of space and time, it was not possible to pursue an extended investigation of the concept of habit in continental

philosophy, and contemporary psychology and neurosciences. Although such an investigation could be the centre of a promising and fruitful dialogue between these two disciplines, a decision was taken to prioritize the construction of an overarching framework for the study of addiction and recovery instead of the 'mechanics' of habit formation. Nevertheless, exploring the concept of habit as the unit of individuation, would increase the explanatory power of a technophilosophical account of addiction and further this account's ability to inform the process of recovery.

Finally, I recognize that an important limitation was the single focus on the philosophical principles of AA without engaging in an extended discussion of other treatment models of addiction (Cognitive-Behavioural Therapy, Motivational Interviewing, Contingency Management, etc.). Unfortunately, a thorough examination of these important interventions would require a shift of focus from the main objective of this project. Admittedly, 12-step programmes are not the only option available for treating addictions, and other models should be considered in the light of the concepts of autonomy and automation. On that note, it would be interesting to examine from a technophilosophical point of view, the dynamics, challenges and lived experience of Opioid Substitution Treatment (OST). Medications such as methadone, buprenorphine and naltrexone in their capacity to reduce cravings and prevent withdrawal symptoms (Dennis and others 2014: 2) provide interesting examples where psychotropic *pharmaka* function as instruments of recovery while remaining potentially toxic. However, opioid substitution is a medically complex treatment, with a highly politicised history and complex phenomenology (see Fraser 2006: 196, for an inspiring investigation of methadone maintenance treatment in Australia), to the extent that an entire dissertation would be necessary to explore the topic at a satisfactory length.

10.3. Contribution and directions for future research

Although I by no means claim that the technophilosophical account of addiction presented in this dissertation resolves the important questions that remain open in the field of critical addiction studies, this project is an attempt to indicate the valuable insights offered by a conceptualisation of addiction as a relationship between the individual, the environments and the technical artefacts that mediate and, to a certain extent, constitute this relationship. The conclusions reached contribute to the ongoing debates about addiction, such as 'disease' or 'weakness of the will', the individual's responsibility, and the role that environmental factors play in the development and recovery from addictive behaviours. Moreover, this dissertation represents the first systematic

attempt at framing the parameters of a dialogue between cultural-historical psychology and continental philosophy with regard to the phenomenon of addiction.

Future research could develop some of the insights offered here in more specialized projects. As mentioned, an investigation of the concept of habit as the unit of individuation could illuminate in more detail how technical artefacts automate and disautomate our psychic apparatus, leading to addiction and other habitual behaviours. The arguments posed by philosophers such as Félix Ravaisson, Henri Bergson, Gilles Deleuze, and Catherine Malabou could be read in the light of how contemporary psychology and neurosciences approach the process of habit formation. Perhaps, a project dedicated on the concept of habit could provide further insights on how the individual is constituted through processes of automation and disautomation. Another possible bifurcation of my project would be an empirical application of the Vygotskian/Stanislavskian framing of addiction recovery as a process of transformation. Finally, the technophilosophical framework proposed here could be used to analyse and expand the promising applications of modern technologies in addiction recovery (see Budney and others 2019: 77 for a review).

Bibliography

Aaby, Bendik Hellem and Grant Ramsey. 2019. 'Three Kinds of Niche Construction', *The British Journal for the Philosophy of Science*: 000–000 <https://doi.org/10.1093/bjps/axz054>

Acker, Caroline Jean. 1993. 'Stigma or Legitimation? A Historical Examination of the Social Potentials of Addiction Disease Models', *Journal of Psychoactive Drugs*, 25.3: 193–205 <https://doi.org/10.1080/02791072.1993.10472271>

———. 1995. 'Addiction and the Laboratory. The Work of the National Research Council's Committee on Drug Addiction, 1928–1939', *Isis; an International Review Devoted to the History of Science and Its Cultural Influences*, 86.2: 167–93 <https://doi.org/10.1086/357152>

———. 2002. *Creating the American Junkie: Addiction Research in the Classic Era of Narcotic Control* (Baltimore, MD: Johns Hopkins University Press)

Adorno, Theodor W. 2020. *The Culture Industry: Selected Essays on Mass Culture*, ed. by J. M. Bernstein (London: Routledge)

Agnew, Jean-Christophe. 1986. *Worlds Apart: The Market and the Theater in Anglo-American Thought, 1550-1750* (Cambridge, England: Cambridge University Press)

Ainslie, George. 2000. 'A Research-Based Theory of Addictive Motivation', *Law and Philosophy*, 19.1: 77–115

Alcoholics Anonymous. 1957. *Alcoholics Anonymous comes of age* (New York: Alcoholics Anonymous World Service, Inc)

———. 2001. *The Big Book: The Story of How Many Thousands of Men and Women Have Recovered from Alcoholism (4th edn)* (New York: Alcoholics Anonymous World Service, Inc)

———. 2021[1946]. *Twelve Steps and Twelve Traditions* (New York: Alcoholics Anonymous World Service, Inc)

Alexander, Bruce K. 2008. *The Globalization of Addiction: A Study in Poverty of the Spirit* (Oxford: Oxford University Press)

Alexander, Bruce K. and Anton R.F. Schweighofer. 1988. 'Defining "addiction"', *Canadian psychology/psychologie Canadienne*, 29.2: 151

Alexander, Bruce K., Robert B. Coambs and Patricia F. Hadaway. 1978. 'The Effect of Housing and Gender on Morphine Self-Administration in Rats', *Psychopharmacology*, 58.2: 175–79 <https://doi.org/10.1007/bf00426903>

Alexander, Bruce K., Barry L. Beyerstein, Patricia F. Hadaway, and Robert B. Coambs. 1981. 'Effect of Early and Later Colony Housing on Oral Ingestion of Morphine in Rats', *Pharmacology, Biochemistry, and Behavior*, 15.4: 571–76 <https://doi.org/10.1016/0091-3057(81)90211-2>

Alexander, Ruth M. 1988. '"We Are Engaged as a Band of Sisters": Class and Domesticity in the Washingtonian Temperance Movement, 1840–1850', *Journal of American History*, 75.3: 763–785 <https://doi.org/10.2307/1901529>

Alpert, Gary D. 1994. 'A Comparative Study of the Symbiotic Relationship Between Beetles of the Genus Cremastocheilus (Coleoptera: Scarabaeidae) and their Host Ants (Hymenoptera:Formicidae)', *Sociobiology*, 25.1: 1–266

American Psychiatric Association. 1952. *Diagnostic and Statistical Manual: Mental Disorders* (Washington: American Psychiatric Association)

American Psychiatric Association. 1968. *Diagnostic and Statistical Manual of Mental Disorders* (Washington: American Psychiatric Association)

American Psychiatric Association. 1980. *Diagnostic and Statistical Manual of Mental Disorders III* (Washington: American Psychiatric Association)

American Psychiatric Association. 1987. *Diagnostic and Statistical Manual of Mental Disorders III–Revised* (Washington: American Psychiatric Association)

American Psychiatric Association. 1994. *Diagnostic and Statistical Manual of Mental Disorders IV* (Washington: American Psychiatric Association)

American Psychiatric Association. 2013. *Diagnostic and Statistical Manual of Mental Disorders 5* (Washington: American Psychiatric Association)

American Psychological Association. 2021. Reward: Online dictionary. <https://dictionary.apa.org/reward>

Amos, Amanda and Margaretha Haglund. 2000. 'From Social Taboo to "Torch of Freedom": The Marketing of Cigarettes to Women', *Tobacco Control*, 9.1: 3–8 <https://doi.org/10.1136/tc.9.1.3>

Amundson, Ron. 1994. 'Two Concepts of Constraint: Adaptationism and the Challenge from Developmental Biology', *Philosophy of Science*, 61.4: 556–78 <https://doi.org/10.1086/289822>

Andersson, Helle Wessel, Merethe Wenaas, and Trond Nordfjærn. 2019. 'Relapse after Inpatient Substance Use Treatment: A Prospective Cohort Study among Users of Illicit Substances', *Addictive Behaviors*, 90: 222–28 <https://doi.org/10.1016/j.addbeh.2018.11.008>

Aristotle. 1968. *Poetics*, trans. by Donald William Lucas (Oxford: Clarendon Press)

Arminjon, Mathieu, François Ansermet, and Pierre Magistretti. 2010. 'The Homeostatic Psyche: Freudian Theory and Somatic Markers', *Journal of Physiology, Paris*, 104.5: 272–78 <https://doi.org/10.1016/j.jphysparis.2010.08.006>

Ars Industrialis. 2010. 'Manifesto 2010', published in *Ars Industrialis: association internationale pour une politique industrielle des technologies de l'esprit* <https://arsindustrialis.org/manifesto-2010> [accessed 23rd January 2022]

Aquili, Luca. 2014. 'The Causal Role between Phasic Midbrain Dopamine Signals and Learning', *Frontiers in Behavioral Neuroscience*, 8: 139 <https://doi.org/10.3389/fnbeh.2014.00139>

Asimov, Isaac. 1965. *The Human Brain: Its Capacities and Functions* (New York: Berkley Books)

Atroszko, Paweł A., Cecilie Schou Andreassen, Mark D. Griffiths, and Ståle Pallesen. 2015. 'Study Addiction – A New Area of Psychological Study: Conceptualization, Assessment, and Preliminary Empirical Findings', *Journal of Behavioral Addictions*, 4.2: 75–84 <https://doi.org/10.1556/2006.4.2015.007>

Aubry, Timothy Richard. 2011. *Reading as Therapy: What Contemporary Fiction Does for Middle-Class Americans* (Iowa City, IA: University of Iowa Press)

Bakhtin, Mikhail. 1984. *Problems of Dostoevsky's Poetics*, ed. by Caryl Emerson (Minneapolis & London: University of Minnesota Press)

Baler, Ruben D. and Nora D. Volkow. 2006. 'Drug Addiction: The Neurobiology of Disrupted Self-Control', *Trends in Molecular Medicine*, 12.12: 559–66 <https://doi.org/10.1016/j.molmed.2006.10.005>

Baranzoni, Sara. 2017. 'Aesthesis and Nous: Technological Approaches', *Parallax*, 23.2: 147–163 <http://dx.doi.org/10.1080/13534645.2017.1299296>

———. 2020. 'Adicción y metabolismo digital. Una mirada desde la filosofía de la tecnología', *Revista Colombiana de Bioética*, *15*.2: 1–17

Barbosa, Carolina, Alexander J. Cowell, and William N. Dowd. 2020. 'Alcohol Consumption in Response to the COVID-19 Pandemic in the United States', *Journal of Addiction Medicine*, 15.4: 341–44 <https://doi.org/10.1097/ADM.0000000000000767>

Barry, Declan T. 2010. 'The Globalization of Addiction. A Study in Poverty of the Spirit', *The Journal of Nervous and Mental Disease*, 198.6: 462 <https://doi.org/10.1097/nmd.0b013e3181e08c15>

Baumeister, Alan A. 2000. 'The Tulane Electrical Brain Stimulation Program a Historical Case Study in Medical Ethics', *Journal of the History of the Neurosciences*, 9.3: 262–78 <https://doi.org/10.1076/jhin.9.3.262.1787>

———. 2006. 'Serendipity and the Cerebral Localization of Pleasure', *Journal of the History of the Neurosciences*, 15.2: 92–98 <https://doi.org/10.1080/09647040500274879>

Baumeister, Roy F. 2002. 'Ego Depletion and Self-Control Failure: An Energy Model of the Self's Executive Function', *Self and Identity: The Journal of the International Society for Self and Identity*, 1.2: 129–36 <https://doi.org/10.1080/152988602317319302>

Baumeister, Roy F., Ellen Bratslavsky, Mark Muraven, and Dianne M. Tice. 1998. 'Ego Depletion: Is the Active Self a Limited Resource?', *Journal of Personality and Social Psychology*, 74.5: 1252–65 <https://doi.org/10.1037//0022-3514.74.5.1252>

Bayer, Ronald and Robert L. Spitzer. 1985. 'Neurosis, Psychodynamics, and DSM-III. A History of the Controversy', *Archives of General Psychiatry*, 42.2: 187–96 <https://doi.org/10.1001/archpsyc.1985.01790250081011>

Baskin, Jon. 2019. *Ordinary Unhappiness: The Therapeutic Fiction of David Foster Wallace* (Stanford: Stanford University Press)

Bateson, Gregory. 1971. 'The Cybernetics of "Self": A Theory of Alcoholism', *Psychiatry*, 34.1: 1–18 <https://doi.org/10.1080/00332747.1971.11023653>

Beck, Ulrich. 1996. 'World risk society as cosmopolitan society? Ecological questions in a framework of manufactured uncertainties', *Theory, Culture & Society*, 13.4: 1–32

Beckett, Samuel. 1989. *Nohow On* (London: John Calder)

Beecher, Lyman. 1827. *Six Sermons on the Nature, Occasions, Signs, Evils, and Remedy of Intemperance* (Boston: T. R. Marvin)

Behrent, Michael C. 2013. 'Foucault and Technology', *History & Technology*, 29.1: 54–104 <https://doi.org/10.1080/07341512.2013.780351>

Benedetti, Jean. 1989. *Stanislavski: An introduction* (London: Methuen Drama)

———. 1990. *Stanislavski: A biography* (London: Methuen Drama)

Bernard, Claude. 1878. *Leçons sur les Phénoménes de la Vie Communs aux Animaux et aux Végétaux*, vol. 1 (Paris: Baillière)

———. 1885. *Leçons sur les phénomènes de la vie communs aux animaux et aux végétaux,* vol. 1, 2nd edn (Paris: Baillière)

Bernays, Edward L. 1928. 'Manipulating Public Opinion: The Why and the How', *American Journal of Sociology*, 33.6: 958–71 <https://doi.org/10.1086/214599>

Bernheim, B. Douglas and Antonio Rangel. 2004. 'Addiction and Cue-Triggered Decision Processes', *American Economic Review*, 94.5: 1558–90 <https://doi.org/10.1257/0002828043052222>

Berridge, Kent C. 2017. 'Is Addiction a Brain Disease?', *Neuroethics*, 10.1: 29–33 <https://doi.org/10.1007/s12152-016-9286-3>

Berridge, Kent C. and Morten L. Kringelbach. 2008. 'Affective Neuroscience of Pleasure: Reward in Humans and Animals', *Psychopharmacology*, 199.3: 457–80 <https://doi.org/10.1007/s00213-008-1099-6>

Berridge, Kent C. and Terry E. Robinson. 1998. 'What Is the Role of Dopamine in Reward: Hedonic Impact, Reward Learning, or Incentive Salience?', *Brain Research Reviews*, 28.3: 309–69 <https://doi.org/10.1016/s0165-0173(98)00019-8>

———. 2016. 'Liking, Wanting, and the Incentive-Sensitization Theory of Addiction', *The American Psychologist*, 71.8: 670–79 https://doi.org/10.1037/amp0000059

Bible: King James Version (London, England: Collins)

Blair, Rhonda. 2002. 'Reconsidering Stanislavsky: Feeling, Feminism, and the Actor', *Theatre Topics*, 12.2: 177–90 <https://doi.org/10.1353/tt.2002.0008>

———. 2008. *The Actor, Image, and Action: Acting and Cognitive Neuroscience* (London: Routledge)

Blanchot, Maurice. 1992[1973]. *The Step not Beyond*, trans. by Lycette Nelson (Albany: University of New York Press)

Blocker, Jack S. Jr. 2006. 'Did Prohibition Really Work? Alcohol Prohibition as a Public Health Innovation', *American Journal of Public Health*, 96.2: 233–43 <https://doi.org/10.2105/AJPH.2005.065409>

Bluhm, Amy Colwell. 2006. 'Verification of C. G. Jung's Analysis of Rowland Hazard and the History of Alcoholics Anonymous', *History of Psychology*, 9.4: 313–24 <https://doi.org/10.1037/1093-4510.9.4.313>

Blum, M. 1941. 'News notes', *Poetry,* 58.3: 168

Blum, Kenneth, Benjamin Thompson, Zsolt Demotrovics, John Femino, John Giordano, and others. 2015. 'The Molecular Neurobiology of Twelve Steps Program & Fellowship: Connecting the Dots for Recovery', *Journal of Reward Deficiency Syndrome*, 1.1: 46–64 <https://pubmed.ncbi.nlm.nih.gov/26306329>

Blunden, Andy. 2016. 'Translating *Perezhivanie* into English', *Mind, Culture, and Activity*, 23.4: 274–83 <https://doi.org/10.1080/10749039.2016.1186193>

Boecker, Henning, Till Sprenger, Mary E. Spilker, Gjermund Henriksen, Marcus Koppenhoefer, and others. 2008. 'The Runner's High: Opioidergic Mechanisms in the Human Brain', *Cerebral Cortex*, 18.11: 2523–31 <https://doi.org/10.1093/cercor/bhn013>

Bøg, Martin, Trine Filges, Lars Brännström, Anne-Marie Klint Jørgensen, and Maja Karrman Fredrikksson. 2017. '12-step Programs for Reducing Illicit Drug Use', *Campbell Systematic Reviews*, 13.1: 1–149 <https://doi.org/10.4073/csr.2017.2>

Bol, Sebastiaan, Jana Caspers, Lauren Buckingham, Gail Denise Anderson-Shelton, Carrie Ridgway, and others. 2017. 'Responsiveness of Cats (Felidae) to Silver Vine (Actinidia Polygama), Tatarian Honeysuckle (Lonicera Tatarica), Valerian (Valeriana Officinalis)and Catnip (Nepeta Cataria)', *BMC Veterinary Research*, 13.1: 70 <https://doi.org/10.1186/s12917-017-0987-6>

Boon, Marcus. 2002. *The Road of Excess: A History of Writers on Drugs* (London, England: Harvard University Press)

Bourdieu, Pierre. 1986. "The forms of capital," in *Handbook of Theory and Research for the Sociology of Education*, ed. by J. Richardson (Westport, CT: Greenwood Press), pp. 241–58

Bourke, Joanna. 2014. 'Pain Sensitivity: An Unnatural History from 1800 to 1965', *The Journal of Medical Humanities*, 35.3: 301–19 <https://doi.org/10.1007/s10912-014-9283-7>

Bovell, James. 1862. *A Plea for Inebriate Asylums Presented to the Legislature of the Province of Canada* (Toronto: Lovell and Gibson)

Bozarth, Michael A., Aileen Murray, and Roy A. Wise. 1989. 'Influence of Housing Conditions on the Acquisition of Intravenous Heroin and Cocaine Self-Administration in Rats', *Pharmacology, Biochemistry, and Behavior*, 33.4: 903–7 <https://doi.org/10.1016/0091-3057(89)90490-5>

Bradbury, Ray. 1994. *Zen in the Art of Writing* (Joshua Odell Editions)

Bradley, Joff P. N. 2021. 'On the Gymnastics of Memory: Stiegler, Positive Pharmacology, and Illiteracy', *New Zealand Journal of Educational Studies*, 56.1: 5–22 <https://doi.org/10.1007/s40841-021-00196-2>

Bratman, Michael E. 2000. 'Reflection, Planning, and Temporally Extended Agency', *The Philosophical Review*, 109.1: 35–61 <https://doi.org/10.2307/2693554>

Bride, Brian. E. and Larry Nackerud. 2002. 'Disease Model of Alcoholism: A Kuhnian Paradigm', *The Journal of Sociology & Social Welfare*, 29.2: 125–141

Bromberg-Martin, Ethan S., Masayuki Matsumoto, and Okihide Hikosaka. 2010. 'Dopamine in Motivational Control: Rewarding, Aversive, and Alerting', *Neuron*, 68.5: 815–34 <https://doi.org/10.1016/j.neuron.2010.11.022>

Brown, Sally and David Brown. 2005. *A Biography of Mrs. Marty Mann* (Center City, PA: Hazelden)

Budney, Alan J., Jacob T. Borodovsky, Lisa A. Marsch, and Sarah E. Lord. 2019. 'Technological Innovations in Addiction Treatment', In *The Assessment and Treatment of Addiction* ed. by Itai Danovitch and Larissa Mooney (Elsevier), pp. 75–90

Bufe, Charles. 1998. *Alcoholics Anonymous: Cult or Cure?* (San Francisco: See Sharp Press)

Buller, David J. 2006. *Adapting Minds: Evolutionary Psychology and the Persistent Quest for Human Nature* (Cambridge, MA: MIT Press)

Burke, Jason. 2010. 'Elephants on Drunken Rampage Kill Three People', *The Guardian* <https://amp.theguardian.com/world/2010/dec/03/elephants-drunken-rampage-india> [accessed 13 June 2022]

Burn, Stephen. 2003. *David Foster Wallace's Infinite Jest* (New York & Continuum)

Burroughs, William S. 2008. *Junky* (London, England: Penguin Classics)

Calabria, Bianca, Louisa Degenhardt, Christina Briegleb, Theo Vos, Wayne Hall, and others. 2010. 'Systematic Review of Prospective Studies Investigating "Remission" from Amphetamine, Cannabis, Cocaine or Opioid Dependence', *Addictive Behaviours*, 35: 741–49 <https://doi.org/10.1016/j.addbeh.2010.03.019>

Calvey, Tanya. 2017. 'The Extended Evolutionary Synthesis and Addiction: The Price We Pay for Adaptability', *Progress in Brain Research*, 235: 1–18 <https://doi.org/10.1016/bs.pbr.2017.07.004>

Campbell, Nancy D. 2007. *Discovering Addiction: The Science and Politics of Substance Abuse Research* (Ann Arbor, MI: University of Michigan Press)

———. 2010. 'Toward a Critical Neuroscience of "Addiction"', *BioSocieties*, 5.1: 89–104 <https://doi.org/10.1057/biosoc.2009.2>

———. 2012. 'Medicalization and Biomedicalization: Does the Diseasing of Addiction Fit the Frame?', in *Critical Perspectives on Addiction* ed. by Julie Netherland (Emerald Group Publishing Limited), pp. 3–25

———. 2013. '"Why Can't They Stop?": A Highly Public Misunderstanding of Science', in *Addiction Trajectories,* ed. by Eugene Raikhel and William Garriott (New York: Duke University Press), pp. 238–62

Canguilhem, Georges. 1991[1966]. *The Normal and the Pathological* (New York: Zone Books)

———. 2001. 'The Living and Its Milieu', trans. by John Savage, *Grey Room*, 3: 7–31 <https://doi.org/10.1162/152638101300138521>

———. 2008[1965]. *Knowledge of Life* (New York: Fordham University Press)

Cannon, Walter B. 1929. 'Organization for physiological homeostasis', *Physiological Reviews,* 9.3: 399–431 <https://doi.org/10.1152/physrev.1929.9.3.399>

———. 1932. *The Wisdom of the Body* (London: Kegan Paul and Co)

Caplan, Arthur L. 2006. 'Ethical Issues Surrounding Forced, Mandated, or Coerced Treatment', *Journal of Substance Abuse Treatment*, 31.2: 117–20 <https://doi.org/10.1016/j.jsat.2006.06.009>

———. 2008. 'Denying Autonomy in Order to Create It: The Paradox of Forcing Treatment upon Addicts', *Addiction*, 103.12: 1919–21 <https://doi.org/10.1111/j.1360-0443.2008.02369.x>

Carter, Brian L. and Stephen T. Tiffany. 1999. 'Meta-analysis of Cue-Reactivity in Addiction Research', *Addiction,* 94.3: 327–340 <https://doi.org/10.1046/j.1360-0443.1999.9433273.x>

Celsus. 1935. *On Medicine: Books I–IV* vol. 1, trans. by W. G. Spencer (London, England: LOEB)

Chabot, Pascal. 2013. *The Philosophy of Simondon: Between Technology and Individuation*, trans. by Graeme Kirkpatrick and Aliza Krefetz (London, England: Bloomsbury Academic)

Chase, Jocelyn. 2020. 'The Ethics of Compulsory Treatment of Addictions under Canadian Legislation: Restricting Freedom to Promote Long–Term Autonomy?', *The Canadian Journal of Addiction*, 11.1: 6–13 <https://doi.org/10.1097/cxa.0000000000000074>

Chou, Ting-Jui and Chih-Chen Ting. 2003. 'The Role of Flow Experience in Cyber-Game Addiction', *Cyberpsychology & Behavior*, 6.6: 663–75 <https://doi.org/10.1089/109493103322725469>

Cicero, Marcus Tullius. 1923. *Pro Archia. Post Reditum in Senatu. Post Reditum ad Quirites. De Domo Sua. De Haruspicum Responsis. Pro Plancio*, trans. by Neville Hunter Watts (London, England: LOEB)

———. 1954. *Rhetorica Ad Herennium*, trans. by Harry Caplan (London, England: LOEB)

———. 1958. *Pro Caelio. De Provinciis Consularibus. Pro Balbo*, trans. by Robert Gardner (London, England: LOEB)

Citton, Yves. 2017. *The Ecology of Attention,* trans. by Barnaby Norman (London: Polity)

Clare, Ysabel. 2016a. 'Stanislavsky's Quest for the Ideal Actor: The System as Socratic Encounter', *Journal of Theatre Dance and Performance Training*, 7.2: 148–64 <https://doi.org/10.1080/19443927.2016.1179668>

———. 2016b. 'A system behind the system: but is it Stanislavski?', *Stanislavski Studies*, 4.2: 89–109 <https://doi.org/10.1080/20567790.2016.1234018>

Clarke, Robert and Mark Merlin. 2013. *Cannabis: Evolution and Ethnobotany* (Berkeley Los Angeles, University of California Press) <https://doi.org/10.1525/9780520954571>

Cocteau, Jean. 1990[1930]. *Opium: The diary of his cure,* trans. by Margaret Grosland (London & Chester Springs: Peter Owen)

Collier, H. O. 1965. 'A General Theory of the Genesis of Drug Dependence by Induction of Receptors', *Nature*, 205.4967: 181–82 https://doi.org/10.1038/205181a0

Conrad, Peter. 2007. *The Medicalization of Society: On the Transformation of Human Conditions into Treatable Disorders* (Baltimore, MD: Johns Hopkins University Press)

Conrad, Peter, and Joseph W. Schneider. 1992. *Deviance and Medicalization: From Badness to Sickness* (Philadelphia, PA: Temple University Press)

Conti, Fiorenzo. 2001. 'Claude Bernard: Primer of the Second Biomedical Revolution', *Nature Reviews: Molecular Cell Biology*, 2.9: 703–8 <https://doi.org/10.1038/35089594>

Cooper, John Edward, and others. 1972. *Psychiatric Diagnosis in New York and London: A Comparative Study of Mental Hospital Admissions* (London, England: Oxford University Press)

Cooper, Steven J. 2008. 'From Claude Bernard to Walter Cannon. Emergence of the Concept of Homeostasis', *Appetite*, 51.3: 419–27 <https://doi.org/10.1016/j.appet.2008.06.005>

Courtwright, David T. 2001. *Dark Paradise: A History of Opiate Addiction in America* (London, England: Harvard University Press)

———. 2005. 'Mr. ATOD's Wild Ride: What Do Alcohol, Tobacco, and Other Drugs Have in Common', *The Social History of Alcohol and Drugs*, 20.1: 105–24 <https://doi.org/10.1086/shad20010105>

———. 2010. 'The NIDA Brain Disease Paradigm: History, Resistance and Spinoffs', *BioSocieties*, 5.1: 137–47 <https://doi.org/10.1057/biosoc.2009.3>

———. 2019. *The age of addiction: How Bad Habits Became Big Business* (Cambridge, Massachusetts; London, England: The Belknap Press of Harvard University Press)

Craig, A. D. 2003. 'A New View of Pain as a Homeostatic Emotion', *Trends in Neurosciences*, *26*.6: 303–307 <https://doi.org/10.1016/S0166-2236(03)00123-1>

Crews, Fulton, Jun He, and Clyde Hodge. 2007. 'Adolescent Cortical Development: A Critical Period of Vulnerability for Addiction', *Pharmacology, Biochemistry, and Behavior*, 86.2: 189–99 <https://doi.org/10.1016/j.pbb.2006.12.001>

Critchfield, Thomas S. and Scott H. Kollins. 2001. 'Temporal Discounting: Basic Research and the Analysis of Socially Important Behavior', *Journal of Applied Behavior Analysis*, 34.1: 101–22 <https://doi.org/10.1901/jaba.2001.34-101>

Crocq, Marc-Antoine. 2007. 'Historical and Cultural Aspects of Man's Relationship with Addictive Drugs', *Dialogues in Clinical Neuroscience*, 9.4: 355–61 <https://doi.org/10.31887/dcns.2007.9.4/macrocq>

Crogan, Patrick. 2013. 'Experience of the Industrial Temporal Object', in *Stiegler and Technics*, ed. by Christina Howells and Gerald Moore (Edinburgh: Edinburgh University Press) pp. 102–118.

Crowley, Martin. 2013. 'The Artist and the Amateur, from Misery to Invention', In *Stiegler and Technics*, ed. by Christina Howells and Gerald Moore (Edinburgh: Edinburgh University Press), pp. 119–134

Csikszentmihalyi, Mihaly. 1975. *Beyond Boredom and Anxiety* (San Francisco: Jossey-Bass)

———.1988a. 'Introduction', in *Optimal Experience: Psychological Studies of Flow in Consciousness*, ed. by Mihaly Csikszentmihalyi and Isabella S. Csikszentmihalyi (Cambridge: Cambridge University Press 1988a), pp. 3–14

———.1988b. 'The flow experience and human psychology', in *Optimal Experience: Psychological Studies of Flow in Consciousness,* ed. by Mihaly Csikszentmihalyi and Isabella S. Csikszentmihalyi (Cambridge: Cambridge University Press), pp. 15–35

———. 2008. *Flow: The Psychology of Optimal Experience* (New York: Harper)

Cushing, Harvey. 1940. *The Life of Sir William Osler* (Oxford: Oxford University Press)

Cutler, Robert B., and David A. Fishbain. 2005. 'Are alcoholism treatments effective? The Project MATCH data', *BMC Public Health* 5.1: 1–11

Dackis, Charles & Charles O'Brien. 2005. 'Neurobiology of Addiction: Treatment and Public Policy Ramifications', *Nature Neuroscience,* 8.11: 1431–1436.

Dafermos, Manolis. 2018. *Rethinking Cultural-Historical Theory: A Dialectical Perspective to Vygotsky* (Singapore: Springer)

Damasio, Antonio. 2018. *The Strange Order of Things: Life, Feeling, and the Making of Cultures* (London: Vintage)

Damasio, Antonio and Gil B. Carvalho. 2013. 'The Nature of Feelings: Evolutionary and Neurobiological Origins', *Nature Reviews: Neuroscience*, 14.2: 143–52 <https://doi.org/10.1038/nrn3403>

Damasio, Antonio and Hanna Damasio. 2016. 'Exploring the Concept of Homeostasis and Considering Its Implications for Economics', *Journal of Economic Behavior & Organization*, 126: 125–29 <https://doi.org/10.1016/j.jebo.2015.12.003>

Dannaway, Frederick R. 2010. 'Strange Fires, Weird Smokes and Psychoactive Combustibles: Entheogens and Incense in Ancient Traditions', *Journal of Psychoactive Drugs*, 42.4: 485–97 <https://doi.org/10.1080/02791072.2010.10400711>

Davidson, Robin. 2002. 'The Oxford Group and Alcoholics Anonymous', *Journal of Substance Use* 7.1: 3–5 <https://doi.org/10.1080/14659890110110400>

Davies, William. 2016. *The Happiness Industry: How the Government and Big Business Sold Us Well-Being* (London: Verso)

Davis, Oliver. 2018. 'Foucault and the Queer Pharmatopia', in *After Foucault: Culture, Theory, and Criticism in the 21st Century,* ed. by Lisa Downing (Cambridge: Cambridge University Press), pp. 170–184

Deacon, Terrence W. 1997. *The Symbolic Species: The Co-evolution of the Brain and Language* (New York, NY: WW Norton & Co)

de Alarcón, Rubén, Javier I. de la Iglesia, Nerea M. Casado, and Angel L. Montejo. 2019. 'Online Porn Addiction: What We Know and What We Don't—A Systematic Review', *Journal of Clinical Medicine*, 8.1: 91 <https://doi.org/10.3390/jcm8010091>

De Beistegui, Miguel. 2013. 'The New Critique of Political Economy', in *Stiegler and Technics,* ed. by Christina Howells and Gerald Moore (Edinburgh: Edinburgh University Press), pp. 181–191

de Haan, Henry J. 2010. 'Origins and Import of Reinforcing Self-Stimulation of the Brain', *Journal of the History of the Neurosciences*, 19.1: 24–32 <https://doi.org/10.1080/09647040902720701>

Dennis, Brittany Burns, Leen Naji, Monica Bawor, Ashley Bonner, Michael Varenbut, and others. 2014. 'The Effectiveness of Opioid Substitution Treatments for Patients with Opioid Dependence: A Systematic Review and Multiple Treatment Comparison Protocol', *Systematic Reviews*, 3.1: 105 <https://doi.org/10.1186/2046-4053-3-105>

De Rick, Ann, Stijn Vanheule, and Paul Verhaeghe. 2009. 'Alcohol Addiction and the Attachment System: An Empirical Study of Attachment Style, Alexithymia, and Psychiatric Disorders in Alcoholic Inpatients', *Substance Use & Misuse*, 44.1: 99–114 <https://doi.org/10.1080/10826080802525744>

Derrida, Jacques. 1981[1972]. *Dissemination*, trans. by Barbara Johnson (London, England: Athlone Press)

———. 2016[1967]. *Of Grammatology*, trans. by Gayatri Chakravorty Spivak (Baltimore: Johns Hopkins University Press)

Diderot, Denis. 1830. *Paradoxe sur le comédien,* undated edition by TV5Monde. <https://bibliothequenumerique.tv5monde.com/livre/317/Paradoxe-sur-le-comedien> [Accessed 21 January 2022]

———. 1883. *The paradox of acting,* trans. by Walter Herries (London: Chatto & Windus, Piccadilly)

Dietrich, Arne. 2004. 'Neurocognitive Mechanisms Underlying the Experience of Flow', *Consciousness and Cognition*, 13.4: 746–61 <https://doi.org/10.1016/j.concog.2004.07.002>

Dodes, Zachary and Lance M. Dodes. 2014. *The Sober Truth the Sober Truth: Debunking the Bad Science Behind 12-Step Programs and the Rehab Industry* (Boston: Beacon Press.)

Driemeier, David. 1997. 'Marijuana (Cannabis Sativa) Toxicosis in Cattle', *Veterinary and Human Toxicology*, 39.6: 351–52

Earle, Timothy and Matthew Spriggs. 2015. 'Political Economy in Prehistory: A Marxist Approach to Pacific Sequences', *Current Anthropology*, 56.4: 515–44 <https://doi.org/10.1086/682284>

Earp, Brian D., Jonathan Lewis, Carl L. Hart, and with Bioethicists and Allied Professionals for Drug Policy Reform. 2021. 'Racial Justice Requires Ending the War on Drugs', *The*

American Journal of Bioethics: AJOB, 21.4: 4–19 <https://doi.org/10.1080/15265161.2020.1861364>

Edwards, Griffith. 2012. 'Thomas Trotter's "Essay on Drunkenness" Appraised', *Addiction*, 107.9: 1562–79 <https://doi.org/10.1111/j.1360-0443.2012.03890.x>

Ehrenreich, Barbara. 2009. *Bright-Sided: How the Relentless Promotion of Positive Thinking has Undermined America* (New York: Metropolitan Books)

Elden, Stuart. 2019. *Canguilhem* (Cambridge: Polity Press)

Elliott, Carl. 2002. 'Who Holds the Leash?', *The American Journal of Bioethics: AJOB*, 2.2: 48 <https://doi.org/10.1162/152651602317533695>

Emrick, Chad D. and Thomas P. Beresford. 2016. 'Contemporary Negative Assessments of Alcoholics Anonymous: A Response', *Alcoholism Treatment Quarterly*, 34.4: 463–71 <https://doi.org/10.1080/07347324.2016.1217713>

Erikson, Erik H. 1959. 'Identity and the life cycle. Selected papers', *Psychological Issues*, 1: 1–171

———. 1968. *Identity, Youth and Crisis* (New York, NY: Norton)

Everitt, Barry J. and Trevor W. Robbins. 2013. 'From the Ventral to the Dorsal Striatum: Devolving Views of Their Roles in Drug Addiction', *Neuroscience and Biobehavioral Reviews*, 37.9 Pt A: 1946–54 <https://doi.org/10.1016/j.neubiorev.2013.02.010>

Ezquerra-Romano, Ivan, Will Lawn, Evgeny Krupitsky, and Celia J. A. Morgan. 2018. 'Ketamine for the Treatment of Addiction: Evidence and Potential Mechanisms', *Neuropharmacology*, 142: 72–82 <https://doi.org/10.1016/j.neuropharm.2018.01.017>

Felix, Robert H. 1973. 'Lawrence Kolb 1881-1972', *American Journal of Psychiatry*, 130.6: 718–719 <https://doi.org/10.1176/ajp.130.6.718>

Ferri, Marica, Laura Amato, and Marina Davoli. 2006. 'Alcoholics Anonymous and Other 12-Step Programmes for Alcohol Dependence', *The Cochrane Library*, Issue 3. Art. No.: CD005032 <https://doi.org/10.1002/14651858.cd005032.pub2>

Ferguson, Michael A., Jared A. Nielsen, Jace B. King, Li Dai, Danielle M. Giangrasso, and others. 2018. 'Reward, Salience, and Attentional Networks Are Activated by Religious Experience in Devout Mormons', *Social Neuroscience*, 13.1: 104–16 <https://doi.org/10.1080/17470919.2016.1257437>

Feunekes, I. J. Gerda, Pieter van't Veer, Wija A. van Staveren, and Frans J. Kok. 1999. 'Alcohol intake assessment: The sober facts', *American Journal of Epidemiology,* 150: 105–112 <https://doi.org/10.1093/oxfordjournals.aje.a009909>

Finlay, Steven W. 2000. 'Influence of Carl Jung and William James on the Origin of Alcoholics Anonymous', *Review of General Psychology*, 4.1: 3–12 <https://doi.org/10.1037/1089-2680.4.1.3>

Finlay, Ilora and Ian Gilmore. 2020. 'Covid-19 and Alcohol–a Dangerous Cocktail', *BMJ*, 369: m1987 <https://doi.org/10.1136/bmj.m1987>

Fleer, Marilyn, Fernando González Rey, and Nikolai Veresov. 2017. 'Perezhivanie, Emotions and Subjectivity: Setting the Stage', in *Perezhivanie, Emotions and Subjectivity*, ed. by Marilyn Fleer, Fernando González Rey & Nikolai Veresov (Singapore: Springer), pp. 1–15

Fletcher, Holly Berkley. 2007. *Gender and the American Temperance Movement of the Nineteenth Century* (London: Routledge)

Flynn, Emma G., Kevin N. Laland, Rachel L. Kendal, and Jeremy R. Kendal. 2013. 'Target Article with Commentaries: Developmental Niche Construction', *Developmental Science*, 16.2: 296–313 <https://doi.org/10.1111/desc.12030>

Foddy, Bennett and Julian Savulescu. 2006. 'Addiction and Autonomy: Can Addicted People Consent to the Prescription of Their Drug of Addiction?', *Bioethics*, 20.1: 1–15 <https://doi.org/10.1111/j.1467-8519.2006.00470.x>

———. 2010. 'A liberal account of addiction', *Philosophy, psychiatry, & psychology: PPP*, 17.1: 1–22 <https://doi.org/10.1353%2Fppp.0.0282>

Folke, Carl, Stephen R. Carpenter, Brian Walker, Marten Scheffer, Terry Chapin, and others. 2010. 'Resilience Thinking: Integrating Resilience, Adaptability and Transformability', *Ecology and Society: A Journal of Integrative Science for Resilience and Sustainability*, 15.4: 20 <https://doi.org/10.5751/es-03610-150420>

Ford, Leigh Arden. 1989. 'Fetching Good out of Evil in AA: A Bormannean Fantasy Theme Analysis of The Big Book of Alcoholics Anonymous', *Communication Quarterly*, 37.1: 1–15 <https://doi.org/10.1080/01463378909385521>

Fortuna, Jeffrey L. 2012. 'The Obesity Epidemic and Food Addiction: Clinical Similarities to Drug Dependence', *Journal of Psychoactive Drugs*, 44.1: 56–63 <https://doi.org/10.1080/02791072.2012.662092>

Foucault, Michel. 1983. 'On the Genealogy of Ethics: An Overview of Work in Progress', in Hubert Dreyfus and Paul Rabinow *Michel Foucault: Beyond Structuralism and Hermeneutics,* 2nd edn (Chicago: University of Chicago Press), pp. 229–252

Foucault, Michel. 1988. 'Technologies of the Self', in *Technologies of the Self: A Seminar with Michel Foucault,* ed. by Luther H. Martin, Huck Gutman and Patrick H. Hutton (Amherst, MA: University of Massachusetts Press), pp. 16–49

———. 1997. 'Self Writing', in *Ethics: Subjectivity and Truth: The Essential Works of Michel Foucault, 1954–1984,* ed. by Paul Rabinow (New York: The New Press), pp. 207–222

———. 2005. *Hermeneutics of the Subject: Lectures at the Collège de France, 1981–82*, ed. by Frédéric Gros, translated by Graham Burchell (New York: Palgrave Macmillan)

Frank, Lone. 2018. *The Pleasure Shock: The Rise of Deep Brain Stimulation and its Forgotten Inventor* (London: Penguin)

Frankfurt, Harry 1971. Freedom of the will and the concept of a person. *Journal of Philosophy,* 68:5–20.

Fraser, Suzanne. 2006. 'The Chronotope of the Queue: Methadone Maintenance Treatment and the Production of Time, Space and Subjects', *The International Journal on Drug Policy*, 17.3: 192–202 <https://doi.org/10.1016/j.drugpo.2006.02.010>

Freud, Sigmund. 1957[1914]. 'On narcissism', in *The Standard Edition of The Complete Psychological Works of Sigmund Freud*, trans. by James Strachey, vol. 14 (London: The Hogarth Press), pp. 67–102

———. 1985. *The Complete Letters to Wilhelm Fliess, 1887–1904*, trans. by Jeffrey Masson (London, England: Harvard University Press)

———. 2001[1930]. 'Civilization and its discontents', in *The Standard Edition of The Complete Psychological Works of Sigmund Freud*, trans. by James Strachey), vol. 21 (London: Vintage), pp. 64–146

Frydman, Jason S. 2016. 'Role Theory and Executive Functioning: Constructing Cooperative Paradigms of Drama Therapy and Cognitive Neuropsychology', *The Arts in Psychotherapy*, 47: 41–47 <https://doi.org/10.1016/j.aip.2015.11.003>

Gage, Suzanne H. and Harry R. Sumnall. 2019. 'Rat Park: How a Rat Paradise Changed the Narrative of Addiction', *Addiction,* 114.5: 917–22 <https://doi.org/10.1111/add.14481>

Garrison, Jim. 1988. *On the Trail of the Assassins* (New York: Warner Books)

Gayon, Jean. 1998. 'The Concept of Individuality in Canguilhem's Philosophy of Biology', *Journal of the History of Biology*, 31.3: 305–25

Gerald, Melissa S. and J. Dee Higley. 2002. 'Evolutionary Underpinnings of Excessive Alcohol Consumption: Evolutionary Underpinnings of Excessive Alcohol Consumption', *Addiction,* 97.4: 415–25 <https://doi.org/10.1046/j.1360-0443.2002.00023.x>

Gilkeson, John S. 1986. *Middle-Class Providence, 1820–1940* (Princeton, NJ: Princeton University Press)

Gille, Bertrand. 1986. *The History of Techniques vol. 1: Techniques and Civilizations* (New York: Gordon and Breach Science)

Glare, P. G. W. 1968. *Oxford Latin Dictionary* (Oxford: Clarendon)

Glaser, Gabrielle. 2014. *Her Best-Kept Secret: Why Women Drink – And How They Can Regain Control* (New York: Simon and Schuster)

———. 2015. The Irrationality of Alcoholics Anonymous. The Atlantic (April 2015) <https://www.theatlantic.com/magazine/archive/2015/04/the-irrationality-of-alcoholics-anonymous/386255/> [Accessed 9 November 2021]

Goldberg, Anna E. 2020. 'The (in)Significance of the Addiction Debate', *Neuroethics*, 13.3: 311–24 <https://doi.org/10.1007/s12152-019-09424-5>

Goldstein, Kurt. 1995[1934]. *The Organism: A Holistic Approach to Biology Derived from Pathological Data in Man* (New York: Zone Books)

Gomart, Emilie. 2002. "Towards Generous Constraint: Freedom and Coercion in a French Addiction Treatment," *Sociology of Health & Illness*, 24.5: 517–49 <https://doi.org/10.1111/1467-9566.00307>

———. 2004. "Surprised by Methadone: In Praise of Drug Substitution Treatment in a French Clinic," *Body & Society*, 10.2–3: 85–110 <https://doi.org/10.1177/1357034x04042937>

Gordon, Jeff, Yoram Shenar, and Susana Pendzik. 2018. 'Clown Therapy: A Drama Therapy Approach to Addiction and Beyond', *The Arts in Psychotherapy*, 57: 88–94 <https://doi.org/10.1016/j.aip.2017.12.001>

Gossop, Michael, Paul Griffiths, Beverly Powis, and John Strang. 1992. 'Severity of Dependence and Route of Administration of Heroin, Cocaine and Amphetamines', *British Journal of Addiction*, 87.11: 1527–36 <https://doi.org/10.1111/j.1360-0443.1992.tb02660.x>

Goudie, Andrew J., Harry R. Sumnall, Matt Field, Hannah Clayton, and Jon C. Cole. 2007. 'The Effects of Price and Perceived Quality on the Behavioural Economics of Alcohol, Amphetamine, Cannabis, Cocaine, and Ecstasy Purchases', *Drug and Alcohol Dependence*, 89.2/3: 107–15 <https://doi.org/10.1016/j.drugalcdep.2006.11.021>

Gowdy, John. 2020. "Our Hunter-Gatherer Future: Climate Change, Agriculture and Uncivilization," *Futures*, 115.102488: 102488 <https://doi.org/10.1016/j.futures.2019.102488>

Graeber, David. 2018. *Bullshit Jobs: A theory* (New York: Simon & Schuster)

Greater Manchester Mental Health NHS Foundation Trust. (n.d.) Self-help workbook and diary. Improving Lives

Gross, Michael. 2010. 'Alcoholics Anonymous: Still Sober after 75 Years', *American Journal of Public Health*, 100.12: 2361–63 <https://doi.org/10.2105/AJPH.2010.199349>

Gruzelier, John, Atsuko Inoue, Roger Smart, Anthony Steed, and Tony Steffert. 2010. 'Acting Performance and Flow State Enhanced with Sensory-Motor Rhythm Neurofeedback Comparing Ecologically Valid Immersive VR and Training Screen Scenarios', *Neuroscience Letters*, 480.2: 112–16 <https://doi.org/10.1016/j.neulet.2010.06.019>

Guattari, Félix. 2014[1989]. *The Three Ecologies*, trans. by Ian Pindar and Paul Sutton (London: Bloomsbury)

Guerra–Doce, Elisa. 2015. 'Psychoactive Substances in Prehistoric Times: Examining the Archaeological Evidence', *Time and Mind*, 8.1: 91–112 <https://doi.org/10.1080/1751696X.2014.993244>

Guidolin, Diego, Deanna Anderlini, Manuela Marcoli, Pietro Cortelli, Giovanna Calandra-Buonaura, and others. 2019. 'A New Integrative Theory of Brain-Body-Ecosystem Medicine: From the Hippocratic Holistic View of Medicine to Our Modern Society', *International Journal of Environmental Research and Public Health*, 16.17: 3136 <https://doi.org/10.3390/ijerph16173136>

Gusfield, Joseph R. 1986. *Symbolic Crusade. Status Politics and the American Temperance Movement,* 2nd edn (Urbana and Chicago: University of Illinois Press)

Hadaway, Patricia F., Bruce K. Alexander, Robert B. Coambs, and Barry Beyerstein. 1979. 'The Effect of Housing and Gender on Preference for Morphine-Sucrose Solutions in Rats', *Psychopharmacology*, 66.1: 87–91 <https://doi.org/10.1007/bf00431995>

Hagen, Edward H. and Shannon Tushingham. 2019. 'The Prehistory of Psychoactive Drug Use', in *Handbook of Cognitive Archaeology*, ed. by Tracy B. Henley, Matt J. Rossano, Edward P. Kardas (London, England: Routledge), pp. 471-498

Hajar, Rachel. 2016. 'Intoxicants in Society', *Heart Views: The Official Journal of the Gulf Heart Association*, 17.1: 42–48 <https://doi.org/10.4103/1995-705X.182651>

Hall, Wayne. 2010. 'What Are the Policy Lessons of National Alcohol Prohibition in the United States, 1920–1933? Policy Lessons of National Alcohol Prohibition in the USA', *Addiction,* 105.7: 1164–73 <https://doi.org/10.1111/j.1360-0443.2010.02926.x>

Hall, Wayne, Adrian Carter, and Cynthia Forlini. 2015. 'The Brain Disease Model of Addiction: Is It Supported by the Evidence and Has It Delivered on Its Promises?', *The Lancet. Psychiatry*, 2.1: 105–10 <https://doi.org/10.1016/S2215-0366(14)00126-6>

Hall, Wayne and Megan Weier. 2017. 'Lee Robins' Studies of Heroin Use among US Vietnam Veterans: Robins' Heroin Studies of Vietnam Veterans', *Addiction,* 112.1: 176–80 <https://doi.org/10.1111/add.13584>

Hammer, Rachel R., Molly J. Dingel, Jenny E. Ostergren, Katherine E. Nowakowski, and Barbara A. Koenig. 2012. 'The Experience of Addiction as Told by the Addicted: Incorporating Biological Understandings into Self–Story', *Culture, Medicine and Psychiatry*, 36.4: 712–34 <https://doi.org/10.1007/s11013-012-9283-x>

Handley, S. A., J. D. Ramsey, and R. J. Flanagan. 2018. 'Substance Misuse-Related Poisoning Deaths, England and Wales, 1993–2016', *Drug Science, Policy and Law*, 4: 205032451876744 <https://doi.org/10.1177/2050324518767445>

Hansen, Mark B. 2017. 'Bernard Stiegler, Philosopher of Desire?', *boundary* 2, 44.1: 167–190 <https://doi.org/10.1215/01903659-3725929>

Hasin, Deborah S., Frederick S. Stinson, Elizabeth Ogburn, and Bridget F. Grant. 2007. 'Prevalence, Correlates, Disability, and Comorbidity of DSM–IV Alcohol Abuse and Dependence in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions: Results from the National Epidemiologic Survey on Alcohol and Related Conditions', *Archives of General Psychiatry*, 64.7: 830–42 <https://doi.org/10.1001/archpsyc.64.7.830>

Hasin, Deborah S., Charles P. O'Brien, Marc Auriacombe, Guilherme Borges, Kathleen Bucholz, and others. 2013. 'DSM-5 Criteria for Substance Use Disorders: Recommendations and Rationale', *The American Journal of Psychiatry*, 170.8: 834–51 <https://doi.org/10.1176/appi.ajp.2013.12060782>

Hayles, N. Katherine. 1999. 'The Illusion of Autonomy and the Fact of Recursivity: Virtual Ecologies, Entertainment, and Infinite Jest', *New Literary History*, 30.3: 675–97 <https://doi.org/10.1353/nlh.1999.0036>

Headlee, Cecil P., Harold W. Coppock, and John R. Nichols. 1955. 'Apparatus and Technique Involved in a Laboratory Method of Detecting the Addictiveness of Drugs', *Journal of the American Pharmaceutical Association*, 44.4: 229–31 <https://doi.org/10.1002/jps.3030440415>

Heath, Robert G. 1954. 'The theoretical framework for a multidisciplinary approach to human behavior', In *Studies in Schizophrenia: A Multidisciplinary Approach to Mind-Brain Relationships,* ed. by Robert G. Heath, Hal C. Becker, Leona Bersadsky, Robert M. Corrigan, Arthur W. Epstein, Warren L. Founds, Francisco Garcia Bengochea, Charles D. Hendley, Robert Hodes, Charles Hogan, H. E. King, Byron E. Leach, Raeburn C. Llewellyn, Walter A. Mickle, William H. Miller, Frederick F. Millsaps, Russell R. Monroe, Samuel M. Peacock, T. Duane Price, Ernest Sachs, Florence B. Strohmeyer, John J. Weber and Kathleen M. Young (Cambridge, MA and London, England: Harvard University Press), pp. 9–55 <https://doi.org/10.4159/harvard.9780674594548>

———. 1972a. 'Marihuana: Effects on Deep and Surface Electroencephalograms of Man', *Archives of General Psychiatry*, 26.6: 577–584

———. 1972b. 'Pleasure and Brain Activity in Man', *Journal of Nervous and Mental Disease*, 154.1: 3–18

———. 1974. 'Application of Sandor Rado's Adaptational Psychodynamic Formulations to Brain Physiology', *Journal of the American Academy of Psychoanalysis* 2.1: 19–25

Heather, Nick. 2017. 'Is the concept of compulsion useful in the explanation or description of addictive behaviour and experience?', *Addictive Behaviors Reports*, 6: 15–38 <https://doi.org/10.1016/j.abrep.2017.05.002>

Heather, Nick, David Best, Anna Kawalek, Matt Field, Marc Lewis, and others. 2018. 'Challenging the Brain Disease Model of Addiction: European Launch of the Addiction Theory Network', *Addiction Research & Theory*, 26.4: 249–55 <https://doi.org/10.1080/16066359.2017.1399659>

Hebb, Donald O. 1949. *The Organization of Behaviour* (New York: Wiley)

Heidegger, Martin. 1978. *Being and Time,* trans. by John Macquarrie & Edward Robinson (London, England: Blackwell)

Heilig, Markus, James MacKillop, Diana Martinez, Jürgen Rehm, Lorenzo Leggio, and others. 2021. 'Addiction as a Brain Disease Revised: Why It Still Matters, and the Need for Consilience', *Neuropsychopharmacology*, 46.10: 1715–23 <https://doi.org/10.1038/s41386-020-00950-y>

Henden, Edmund. 2018. 'Addiction as a Disorder of Self-Control', in *The Routledge Handbook of Philosophy and Science of Addiction,* ed. by Hanna Pickard and Serge Ahmed (New York: Routledge), pp. 45–53

Hermann, Esther, Josep Call, Maráa Victoria Hernàndez-Lloreda, Brian Hare, and Michael Tomasello. 2007. 'Humans Have Evolved Specialized Skills of Social Cognition: The Cultural Intelligence Hypothesis', *Science,* 317.5843: 1360–66 <https://doi.org/10.1126/science.1146282>

Hilton Jr, Donald L. and Clark Watts. 2011. 'Pornography Addiction: A Neuroscience Perspective', *Surgical Neurology International*, 2.19: 1-5

Holland, Mary K. 2006. '"The Art's Heart's Purpose": Braving the Narcissistic Loop of David Foster Wallace's Infinite Jest', *Critique: Studies in Contemporary Fiction,* 47.3: 218–42 <https://doi.org/10.3200/crit.47.3.218-242>

Holmes, Frederick. L. 1986. 'Claude Bernard, The "Milieu Intérieur", and Regulatory Physiology', *History and Philosophy of the Life Sciences*, 8.1: 3–25

Holt, Elizabeth and Donna H. Kaiser. 2009. 'The First Step Series: Art Therapy for Early Substance Abuse Treatment', *The Arts in Psychotherapy* 36.4: 245–250 <https://doi.org/10.1016/j.aip.2009.05.004>

Holton, Richard and Kent Berridge. 2017. 'Compulsion and choice in addiction', in *Addiction and choice: Rethinking the relationship*, ed. by Nick Heather & Gabriel Segal (Oxford: Oxford University Press), pp. 153–170

Hopley, Anthony A.B. and Richard M. Nicki. 2010. 'Predictive Factors of Excessive Online Poker Playing', *Cyberpsychology, Behavior & Social Networking,* 13.4: 379–385 <10.1089/cyber.2009.0223>

Horay, Brian J. 2006. 'Moving towards gray: Art therapy and ambivalence in substance abuse treatment', *Art Therapy*, 23.1: 14–22

Husserl, Edmund. 1991. *On the Phenomenology of the Consciousness of Internal Time (1893–1917)*, trans. by John Barnett Brough (Dordrecht, Netherlands: Springer)

Howells, Christina. 2013. '"*Le Défaut d'origine"*: The Prosthetic Constitution of Love and Desire', in *Stiegler and Technics,* ed. by Christina Howells and Gerald Moore (Edinburgh: Edinburgh University Press), pp. 181–191

Huang, Yanhua H., Oliver M. Schlüter, and Yan Dong. 2011. 'Cocaine-Induced Homeostatic Regulation and Dysregulation of Nucleus Accumbens Neurons', *Behavioural Brain Research*, 216.1: 9–18 <https://doi.org/10.1016/j.bbr.2010.07.039>

Hudson, Michael. 2022. 'The End of Western Civilization', *MR Online* <https://mronline.org/2022/07/14/the-end-of-western-civilization/>[accessed 17 July 2022]

Huijer, Marli. 1999. 'The Aesthetics of Existence in the Work of Michel Foucault', *Philosophy & Social Criticism*, 25.2: 61–85 <https://doi.org/10.1177/01914537902500204>

Hull, Clark L. 1943. *Principles of Behaviour* (New York: Appleton-Century)

———. 1958. *A Behavior System: An Introduction to Behavior Theory Concerning the Individual Organism* (New Haven: Yale University Press)

Hull, Damien C., Glenn A. Williams, and Mark D. Griffiths. 2013. 'Video game characteristics, happiness and flow as predictors of addiction among video game players: A pilot

study', *Journal of Behavioral Addictions* 2.3: 145–152 <https://doi.org/10.1556/JBA.2.2013.005>

Humphreys, Keith, Janet C. Blodgett, and Todd H. Wagner. 2014. 'Estimating the Efficacy of Alcoholics Anonymous without Self–Selection Bias: An Instrumental Variables Re Analysis of Randomized Clinical Trials', *Alcoholism, Clinical and Experimental Research*, 38.11: 2688–94 <https://doi.org/10.1111/acer.12557>

Ihde, Don and Lambros Malafouris. 2019. 'Homo Faber Revisited: Postphenomenology and Material Engagement Theory', *Philosophy & Technology*, 32.2: 195–214 <https://doi.org/10.1007/s13347-018-0321-7>

Irving-Stonebraker, Sarah. 2017. 'Disease and Civilization: A Scottish Atlantic Network of Physicians in the Enlightenment', *Britain and the World*, 10.2: 197–216 <https://doi.org/10.3366/brw.2017.0275>

Jackson, Susan A. and Herbert W. Marsh. 1996. 'Development and validation of a scale to measure optimal experience: The Flow State Scale', *Journal of Sport and Exercise Psychology*, 18.1: 17-35.

Jacobs, Durand E. 1986. 'A general theory of addictions: A new theoretical model', *Journal of Gambling Behaviour,* 2.1: 15–31

———. 1988. 'Evidence for a common dissociative–like reaction among addicts', *Journal of Gambling Behaviour* 4.1: 27–37

Jain, Sarah S. 1999. 'The Prosthetic Imagination: Enabling and Disabling the Prosthesis Trope', *Science, Technology & Human Values*, 24.1: 31–54 <https://doi.org/10.1177/016224399902400103>

James, William. 2003[1902]. *The Varieties of Religious Experience: A Study in Human Nature* (London: Routledge)

Jamison, Leslie. 2018. *The Recovering: Intoxication and its Aftermath* (London: GRANTA)

Jellinek, E. Morton. 1952. The phases of alcohol addiction, in: World Health Organization, Expert Committee on Mental Health, *Alcoholism Subcommittee, Second Report,* WHO Technical Report Series No. 48, Annex 2, (pp. 26–39) (Geneva, WHO)

———. 1960a. 'Alcoholism, a genus and some of its species', *Canadian Medical Association Journal*, 83.26: 1341

———. 1960b. *The Disease Concept of Alcoholism* (New Haven: Hillhouse Press)

Jolliffe, Norman and E. Morton Jellinek. 1941. 'Vitamin deficiencies and liver cirrhosis in alcoholism. 4. Cirrhosis of the liver', *Quarterly Journal of Studies on Alcohol*, 2.3: 544–83

Johansen, Ayna B., Farnad J. Darnell, and Elisabeth Franzen. 2013. 'Constructing a Theory and Evidence-Based Approach to Promote and Evaluate Autonomy in Addiction', *Inquiry*, 56.5: 539–57 <https://doi.org/10.1080/0020174x.2013.806138>

Johnson, Brian. 2013. 'Addiction and Will', *Frontiers in Human Neuroscience*, 7: 545 <https://doi.org/10.3389/fnhum.2013.00545>

Johnston, Daniel. 2011. 'Stanislavskian acting as phenomenology in practice', *Journal of Dramatic Theory and Criticism*, 26.1: 65–84 <https://doi.org/10.1353/dtc.2011.0000>

Joutsa, Juho, Jarkko Johansson, Solja Niemelä, Antti Ollikainen, Mika M. Hirvonen, and others. 2012. 'Mesolimbic Dopamine Release Is Linked to Symptom Severity in Pathological Gambling', *NeuroImage*, 60.4: 1992–99 <https://doi.org/10.1016/j.neuroimage.2012.02.006>

Jupp, Bianca, Daniele Caprioli, Niel Saigal, Ingrid Reverte, Saurav Shrestha, and others. 2013. 'Dopaminergic and GABA-ergic Markers of Impulsivity in Rats: Evidence for Anatomical Localisation in Ventral Striatum and Prefrontal Cortex', *The European Journal of Neuroscience*, 37.9: 1519–28 <https://doi.org/10.1111/ejn.12146>

Kakoliris, Gerasimos. 2015. 'The "Undecidable" Pharmakon: Derrida's Reading of Plato's Phaedrus', in *The New Yearbook for Phenomenology and Phenomenological Philosophy*, ed. by Burt Hopkins and John Drummond (London, England: Routledge), pp. 231–42

Karch, Susanne, Daniel Keeser, Sebastian Hümmer, Marco Paolini, Valerie Kirsch, and others. 2015. 'Modulation of Craving Related Brain Responses Using Real-Time FMRI in Patients with Alcohol Use Disorder', *PloS One*, 10.7: e0133034 <https://doi.org/10.1371/journal.pone.0133034>

Kaskutas, Lee Ann. 2009. 'Alcoholics Anonymous Effectiveness: Faith Meets Science', *Journal of Addictive Diseases*, 28.2: 145–57 <https://doi.org/10.1080/10550880902772464>

Katz, Alfred H. 1981. 'Self-Help and Mutual Aid: An Emerging Social Movement?', *Annual Review of Sociology*, 7.1: 129–55 <https://doi.org/10.1146/annurev.so.07.080181.001021>

Keane, Helen. 2000. 'Setting yourself free: Techniques of recovery', *Health*, 4.3: 324–346

Kelemen, Gabor and Monika Andrea Mark. 2016. 'Jellinek Revalued', *Drugs and Alcohol Today*, 16.4: 233–46 <https://doi.org/10.1108/dat-10-2015-0058>

Keiflin, Ronald and Patricia H. Janak. 2015. 'Dopamine Prediction Errors in Reward Learning and Addiction: From Theory to Neural Circuitry', *Neuron*, 88.2: 247–63 <https://doi.org/10.1016/j.neuron.2015.08.037>

Keire, Mara L. 1998. 'Dope Fiends and Degenerates: The Gendering of Addiction in the Early Twentieth Century', *Journal of Social History*, 31.4: 809–22 <https://doi.org/10.1353/jsh/31.4.809>

Keis, Mille K. B., Asger J. Nymann Nielsen, and Morten Nissen. 2016. 'User-Driven Standards in a Mutual Help Context: The Co-Emergence of Subjects and Standards', *Theory & Psychology*, 26.2: 243–62 <https://doi.org/10.1177/0959354316637982>

Kelly, John F. 2019. 'E. M. Jellinek's Disease Concept of Alcoholism', *Addiction*, 114.3: 555–59 <https://doi.org/10.1111/add.14400>

Kelly, John F., Keith Humphreys, and Marica Ferri. 2020. 'Alcoholics Anonymous and Other 12 Step Programs for Alcohol Use Disorder', *Cochrane Database of Systematic Reviews*, 3: CD012880 <https://doi.org/10.1002/14651858.CD012880.pub2>

Kendell, R. E., J. E. Cooper, A. J. Gourlay, J. R. Copeland, L. Sharpe, and others. 1971. 'Diagnostic Criteria of American and British Psychiatrists', *Archives of General Psychiatry*, 25.2: 123–30 <https://doi.org/10.1001/archpsyc.1971.01750140027006>

Kennett, Jeanette, Steve Matthews, and Anke Snoek. 2013. 'Pleasure and Addiction', *Frontiers in Psychiatry*, 4: 117 <https://doi.org/10.3389/fpsyt.2013.00117>

Khantzian, Edward J. 1974. 'Opiate Addiction: A Critique of Theory and Some Implications for Treatment', *American Journal of Psychotherapy*, 28.1: 59–70 <https://doi.org/10.1176/appi.psychotherapy.1974.28.1.59>

———. 1985. 'The self-medication hypothesis of addictive disorders: Focus on heroin and cocaine dependence', *American Journal of Psychiatry,* 142: 1259–64 <10.1176/ajp.142.11.1259>

———. 1997. 'The Self-Medication Hypothesis of Substance Use Disorders: A Reconsideration and Recent Applications', *Harvard Review of Psychiatry*, 4.5: 231–44 <https://doi.org/10.3109/10673229709030550>

Kidd, Ian James. 2012. 'Oswald Spengler, Technology, and Human Nature', *The European Legacy, toward New Paradigms*, 17.1: 19–31 <https://doi.org/10.1080/10848770.2011.640190>

Kilian, Carolin, Jürgen Rehm, Peter Allebeck, Fleur Braddick, Antoni Gual, and others. 2021. 'Alcohol Consumption during the COVID-19 Pandemic in Europe: A Large-Scale Cross-Sectional Study in 21 Countries', *Addiction*, 116.12: 3369–80 <https://doi.org/10.1111/add.15530>

Kim, Dong-Youl, Seung-Schik Yoo, Marion Tegethoff, Gunther Meinlschmidt, and Jong-Hwan Lee. 2015. 'The Inclusion of Functional Connectivity Information into FMRI-Based Neurofeedback Improves Its Efficacy in the Reduction of Cigarette Cravings', *Journal of Cognitive Neuroscience*, 27.8: 1552–72 <https://doi.org/10.1162/jocn_a_00802>

Kinna, Ruth. 1995. 'Kropotkin's Theory of Mutual Aid in Historical Context', *International Review of Social History*, 40.2: 259–83 <https://doi.org/10.1017/s0020859000113227>

Kirsch, Peter, Anne Schienle, Rudolf Stark, Gebhard Sammer, Carlo Blecker, and others. 2003. 'Anticipation of Reward in a Nonaversive Differential Conditioning Paradigm and the Brain Reward System: An Event–Related FMRI Study', *NeuroImage*, 20.2: 1086–95 <https://doi.org/10.1016/S1053-8119(03)00381-1>

Kirsch, Martina, Isabella Gruber, Matthias Ruf, Falk Kiefer, and Peter Kirsch. 2016. 'Real-Time Functional Magnetic Resonance Imaging Neurofeedback Can Reduce Striatal Cue-Reactivity to Alcohol Stimuli: Neurofeedback in Addiction," *Addiction Biology*, 21.4: 982–92 <https://doi.org/10.1111/adb.12278>

Kirschner, Matthias, Ronald Sladky, Amelie Haugg, Philipp Stämpfli, Elisabeth Jehli, and others. 2018. 'Self-Regulation of the Dopaminergic Reward Circuit in Cocaine Users with Mental Imagery and Neurofeedback', *EBioMedicine*, 37: 489–98 <https://doi.org/10.1016/j.ebiom.2018.10.052>

Kolb, Lawrence. 1925. 'Types and characteristics of drug addicts', *Menial Hygiene,* 9: 300–13

———. 1962. *Drug Addiction: A Medical Problem* (Springfield, Ill.: Charles C Thomas)

Konstantinou, Lee. 2016. *Cool Characters: Irony and American Fiction* (Cambridge, MA: Harvard University Press)

Koob, George F. 2003. 'Neuroadaptive Mechanisms of Addiction: Studies on the Extended Amygdala', *European Neuropsychopharmacology*, 13.6: 442–52 <https://doi.org/10.1016/j.euroneuro.2003.08.005>

———. 2011. 'Neurobiology of Addiction', *Focus,* 9.1: 55–65 <https://doi.org/10.1176/foc.9.1.foc55>

———. 2016. 'The neurobiology of reward and stress and its relevance for understanding drug seeking and dependence symptomatology', in *The Oxford Handbook of Substance Use and Substance Use Disorders*, ed. by Kenneth J. Sher (Oxford: Oxford University Press), pp. 166–191

Koob, George F. and Michel Le Moal. 1997. 'Drug Abuse: Hedonic Homeostatic Dysregulation', *Science,* 278.5335: 52–58 <https://doi.org/10.1126/science.278.5335.52>

Koob, George F., Patricia Powell, and Aaron White. 2020 'Addiction as a Coping Response: Hyperkatifeia, Deaths of Despair, and COVID-19', *American Journal of Psychiatry* 177.11: 1031–1037 <https://doi.org/10.1176/appi.ajp.2020.20091375>

Koob, George F. and Nora D. Volkow. 2010. 'Neurocircuitry of addiction', *Neuropsychopharmacology*, 35.1: 217–58 <https://doi.org/10.1038/npp.2009.110>

Koonin, Eugene V. 2016. 'Splendor and Misery of Adaptation, or the Importance of Neutral Null for Understanding Evolution', *BMC Biology*, 14.1 <https://doi.org/10.1186/s12915-016-0338-2>

Kopelson, Karen. 2007. 'Sloganeering Our Way to Serenity: AA and the Language(s) of America', *JAC,* 27.3/4: 591–636 <http://www.jstor.org/stable/20866801>

Kreuter, Eric A. 2020. 'Incorporation of expressive writing in the treatment of drug and alcohol addiction', *Journal of Poetry Therapy* 33.3: 179–186.

Krief, Sabrina. 2011. 'Do Animals Use Natural Properties of Plants to Self-Medicate?', in *Applied Equine Nutrition and Training*, ed. by Arno Lindner (Wageningen: Wageningen Academic Publishers), pp. 159–70 <https://link.springer.com/chapter/10.3920/978-90-8686-740-0_10>

Kropotkin, Petr Alekseevich. 1902. *Mutual Aid: A Factor of Evolution* (New York: McClure Phillips & Co)

Kugler, Maurice, Thierry Verdier, and Yves Zenou. 2005. 'Organized Crime, Corruption and

Punishment', *Journal of Public Economics*, 89.9–10: 1639–63 <https://doi.org/10.1016/j.jpubeco.2004.05.005>

Kuhn, Brittany N., Peter W. Kalivas, and Ana-Clara Bobadilla. 2019. 'Understanding Addiction Using Animal Models', *Frontiers in Behavioral Neuroscience*, 13: 262 <https://doi.org/10.3389/fnbeh.2019.00262>

Kuley, Nadia B. and Durand F. Jacobs. 1988. 'The relationship between dissociative-like experiences and sensation seeking among social and problem gamblers', *Journal of Gambling Behavior* 4.3: 197–207

Kurtz, Ernest. 2002. 'Alcoholics Anonymous and the disease concept of alcoholism', *Alcoholism Treatment Quarterly*, 20.3–4: 5–39

Kwok, Wingfai and Thakshyanee Bhuvanakrishna. 2014. 'The Relationship between Ethnicity and the Pain Experience of Cancer Patients: A Systematic Review', *Indian Journal of Palliative Care*, 20.3: 194–200 <https://doi.org/10.4103/0973-1075.138391>

Laland, Kevin, Blake Matthews, and Marcus W. Feldman. 2016. 'An introduction to niche construction theory', *Evolutionary Ecology* 30.2: 191–202 <https://doi.org/10.1007/s10682-016-9821-z>

Lamme, Margot Opdycke. 2003. 'The Public Sentiment Building Society: The Anti-Saloon League of America, 1895–1910', *Journalism History*, 29:3: 123–132

Landolfi, Emilio. 2013. 'Exercise Addiction', *Sports Medicine*, 43.2: 111–19 <https://doi.org/10.1007/s40279-012-0013-x>

Lassiter, Pamela S. and Michael S. Spivey. 2018. 'Historical perspectives and moral model', in *Theory and Practice of Addiction Councelling*, ed. by Pamela S. Lassiter & John R. Culbreth (Thousand Oaks, California: SAGE), pp. 27–45

Lee, Matthew R. and Kenneth J. Sher. 2018. '"Maturing Out" of Binge and Problem Drinking', *Alcohol Research: Current Reviews*, 39.1: 31–42 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6104962/pdf/arcr-39-1-e1_a05.pdf>

Leeman, Robert F. and Marc N. Potenza. 2013. 'A Targeted Review of the Neurobiology and Genetics of Behavioural Addictions: An Emerging Area of Research', *Canadian Journal of*

Psychiatry. Revue Canadienne de Psychiatrie, 58.5: 260–73 <https://doi.org/10.1177/070674371305800503>

Leitzel, Jim. 2007. *Regulating Vice: Misguided Prohibitions and Realistic Controls* (Cambridge, England: Cambridge University Press)

Lem, Stanisław. 2013[1964]. *Summa Technologiae*, trans. by Joanna Zylinska (Minneapolis, MN: University of Minnesota Press)

Lemon, Rebecca. 2018. *Addiction and Devotion in Early Modern England* (Baltimore, MD: University of Pennsylvania Press)

Lende, Daniel H. and E. O. Smith. 2002. 'Evolution Meets Biopsychosociality: An Analysis of Addictive Behavior: Evolution, Biopsychosociality and Addiction', *Addiction*, 97.4: 447–58 <https://doi.org/10.1046/j.1360-0443.2002.00022.x>

Leshner, Alan I. 1997. 'Addiction Is a Brain Disease, and It Matters', *Science*, 278.5335: 45–47 <https://doi.org/10.1126/science.278.5335.45>

Levine, Harry Gene. 1978. 'The Discovery of Addiction. Changing Conceptions of Habitual Drunkenness in America', *Journal of Studies on Alcohol*, 39.1: 143–74 <https://doi.org/10.15288/jsa.1978.39.143>

———. 1984. 'The Alcohol Problem in America: From Temperance to Alcoholism', *British Journal of Addiction*, 79.1: 109–19 <https://doi.org/10.1111/j.1360-0443.1984.tb03845.x>

Levine, Harry Gene and Craig Reinarman. 1991. 'From Prohibition to Regulation: Lessons from Alcohol Policy for Drug Policy', *The Milbank Quarterly*, 69.3: 461–94 <https://doi.org/10.2307/3350105>

Leys, Ruth. 2011. 'The Turn to Affect: A Critique', *Critical Inquiry*, 37.3: 434–72 <https://doi.org/10.1086/659353>

Leverant, Robert. 1990. 'Intoxication: Life in Pursuit of Artificial Paradise', *Journal of Psychoactive Drugs*, 22.1: 105–6 <https://doi.org/10.1080/02791072.1990.10472209>

Levy, Neil. 2006a. 'Addiction, autonomy and ego-depletion: A response to Bennett Foddy and Julian Savulescu', *Bioethics*, 20.1: 16–20 <https://psycnet.apa.org/doi/10.1111/j.1467-8519.2006.00471.x>

———. 2006b. 'Autonomy and addiction', *Canadian Journal of Philosophy*, 36.3: 427–447 <https://doi.org/10.1353/cjp.2006.0018>

Lewis, Marc. 2015. *The Biology of Desire: Why Addiction Is Not a Disease* (Public Affairs New York)

———. 2017. "Addiction and the brain: development, not disease" *Neuroethics*, 10.1: 7–18 <https://doi.org/10.1007/s12152-016-9293-4>

Lewis, Michael. 2013. 'Of a Mythical Philosophical Anthropology: The Transcendental and the Empirical *Technics and Time*', in *Stiegler and Technics,* ed. by Christina Howells and Gerald Moore (Edinburgh: Edinburgh University Press), pp. 53–68

Li, Yang-Yang, Yan Sun, Shi-Qiu Meng, Yan-Ping Bao, Jia-Lu Cheng, and others. 2021. 'Internet Addiction Increases in the General Population during COVID–19: Evidence from China', *The American Journal on Addictions*, 30.4: 389–97 <https://doi.org/10.1111/ajad.13156>

Lindberg, Susanna. 2019. 'Being with Technique–Technique as Being-with: The Technological Communities of Gilbert Simondon', *Continental Philosophy Review*, 52.3: 299–310 <https://doi.org/10.1007/s11007-019-09466-9>

Lindel, H. G., Scott, R., Jones, H. S., McKenzie, R., Thesaurus Linguae Graecae Project. (2011). The online Liddell-Scott-Jones Greek-English lexicon. (Irvine, CA: University of California, Irvine) <http://stephanus.tlg.uci.edu/lsj/#eid=111771> [accessed 9 November 2021]

Lipsky, David. 2010. *Although of Course You End Up Becoming Yourself: A Road Trip with David Foster Wallace* (New York: Broadway Books)

Litt, Carole J. 1986. 'Theories of Transitional Object Attachment: An Overview', *International Journal of Behavioral Development*, 9.3: 383–99 <https://doi.org/10.1177/016502548600900308>

Loonen, Anton J. M. and Svetlana A. Ivanova. 2015. 'Circuits Regulating Pleasure and Happiness: The Evolution of Reward–Seeking and Misery-Fleeing Behavioral Mechanisms in Vertebrates', *Frontiers in Neuroscience*, 9: 394 <https://doi.org/10.3389/fnins.2015.00394>

Loose, Rik. 2002. *The Subject of Addiction: Psychoanalysis and the Administration of Enjoyment* (London: Karnac)

———. 2015. 'The hijacking of the symptom and the addictification of society', *Subjectivity*, 8.2: 165–179 <https://doi.org/10.1057/sub.2015.2>

Lopez-Quintero, Catalina, Deborah S. Hasin, José Pérez de Los Cobos, Abigail Pines, Shuai Wang, and others. 2011. 'Probability and Predictors of Remission from Life-Time Nicotine, Alcohol, Cannabis or Cocaine Dependence: Results from the National Epidemiologic Survey on Alcohol and Related Conditions: Predictors of Life-Time Dependence Remission', *Addiction*, 106.3: 657–69 <https://doi.org/10.1111/j.1360-0443.2010.03194.x>

Lotka, Alfred J. 1945. 'The law of evolution as a maximal principle', *Human Biology*, 17.3: 167–194

Loue, Sana. 2003. 'The Criminalization of the addictions: Toward a unified approach', *The Journal of Legal Medicine*, 24.3: 281–330 <https://doi.org/10.1080/713832196>

Lunze, Karsten, Bulat Idrisov, Mikhail Golichenko, and Adeeba Kamarulzaman. 2016. 'Mandatory Addiction Treatment for People Who Use Drugs: Global Health and Human Rights Analysis', *BMJ*, 353: i2943 <https://doi.org/10.1136/bmj.i2943>

Ly, Calvin, Alexandra C. Greb, Lindsay P. Cameron, Jonathan M. Wong, Eden V. Barragan, and others. 2018. 'Psychedelics Promote Structural and Functional Neural Plasticity', *Cell Reports*, 23.11: 3170–82 <https://doi.org/10.1016/j.celrep.2018.05.022>

Macario, Everly, Carol Krause, Jennifer Cooke Katt, Shelley Caplan, Robin Stevens Payes, and others. 2013. 'NIDA Engages Teens through Its Blog: Lessons Learned', *Journal of Social Marketing*, 3.1: 41–55 <https://doi.org/10.1108/20426761311297225>

MacInnes, Jeff J., Kathryn C. Dickerson, Nan–Kuei Chen, and R. Alison Adcock. 2016. 'Cognitive Neurostimulation: Learning to Volitionally Sustain Ventral Tegmental Area Activation', *Neuron*, 89.6: 1331–42 <https://doi.org/10.1016/j.neuron.2016.02.002>

McKenzie, Catriona and Natalie Stoljar. 2000. 'Introduction: Autonomy refigured', in *Relational autonomy: Feminist perspectives on autonomy, agency, and the social self*, ed. by Catriona McKenzie and Natalie Stoljar (New York: Oxford University Press), pp. 3–34

McKinlay, Roger. 2016. 'Technology: Use or Lose Our Navigation Skills', *Nature*, 531.7596: 573–75 <https://doi.org/10.1038/531573a>

Magnat, Virginie. 2002. 'Theatricality from the Performative Perspective', *SubStance*, 31.2/3: 147–166 <https://doi.org/10.2307/3685483>

Mahapatra, Sabita. 2019. 'Smartphone Addiction and Associated Consequences: Role of Loneliness and Self-Regulation', *Behaviour & Information Technology*, 38.8: 833–44 <https://doi.org/10.1080/0144929x.2018.1560499>

Mäkelä, Klaus, Ilkka Arminen, Kim Bloomfield, Irmgard Eisenbach–Stangl, Karin H. Bergmark, Noriko Kurube and others. 1996. *Alcoholics Anonymous as a Mutual-Help Movement: A Study in Eight Societies* (Madison: The University of Wisconsin Press)

Malabou, Catherine. 2008[2004]. *What Should We Do with Our Brain?*, trans. by Sebastian Rand (New York: Fordham University Press)

———. 2017. 'The Brain of History, or, the Mentality of the Anthropocene', *The South Atlantic Quarterly*, 116.1: 39–53 <https://doi.org/10.1215/00382876-3749304>

Malafouris, Lambros. 2013. *How things shape the mind* (Cambridge, Massachusetts & London, England: The MIT Press)

———. 2014. 'Creative *Thinging*: The*Feeling of* and *for Clay*', *Pragmatics & Cognition*, 22.1: 140– 58 <https://doi.org/10.1075/pc.22.1.08mal>

Mandeville, Bernard. 2011[1732]. *The Fable of the Bees or Private Vices, Publick Benefits,* vol. 1. <https://oll.libertyfund.org/title/kaye-the-fable-of-the-bees-or-private-vices-publick-benefits-vol-1> [Accessed on 2 February 2022]

Mann, Karl, Derik Hermann, and Andreas Heinz. 2000. 'One Hundred Years of Alcoholism: The Twentieth Century', *Alcohol and Alcoholism*, 35.1: 10–15 <https://doi.org/10.1093/alcalc/35.1.10>

Marcuse, Herbert. 2015[1955]. *Eros and Civilization*, 2nd edn (London, England: Routledge)

Margulis, Lynn. 1998. *Symbiotic Planet: A New Look At Evolution* (London, England: Basic Books)

Martin, Jeffrey J. and Keir Cutler. 2002. 'An Exploratory Study of Flow and Motivation in Theatre Actors', *Journal of Applied Sport Psychology*, 14.4: 344-352 <https://doi.org/10.1080/10413200290103608>

Mayes, Rick and Allan V. Horwitz. 2005. 'DSM–III and the Revolution in the Classification of Mental Illness', *Journal of the History of the Behavioral Sciences*, 41.3: 249–67 <https://doi.org/10.1002/jhbs.20103>

Max, D. T. 2012. *Every Love Story is a Ghost Story: A Life of David Foster Wallace* (London: GRANTA)

McKim, Allison. 2017. *Addicted to Rehab*: *Race, Gender, and Drugs in the Era of Mass Incarceration* (New Brunswick, Camden, and Newark, New Jersey, and London: Rutgers University Press)

Meineck, Peter. 2018. *Theatrocracy: Greek Drama, Cognition, and the Imperative for Theatre* (London, England: Routledge)

Merlin, Mark D. 2003. 'Archaeological Evidence for the Tradition of Psychoactive Plant Use in the Old World', *Economic Botany*, 57.3: 295–323

Merlin, Bella. 2014. *The Complete Stanislavsky Toolkit* (London: Nick Hern Books)

Meyer, Roger E. 1996. 'The disease Called Addiction: Emerging Evidence in a 200-year Debate', *The Lancet*, 347.8995: 162–166

Metlay, Grischa. 2013. 'Federalizing Medical Campaigns against Alcoholism and Drug Abuse: Medical Campaigns against Alcoholism and Drug Abuse', *The Milbank Quarterly*, 91.1: 123–62 <https://doi.org/10.1111/milq.12004>

Miller, Peter Graeme, Adrian Nicholas Carter and Florentine P De Groot. 2012. 'Investment and vested interests in neuroscience research of addiction: Ethical research requires more than informed consent', in *Addiction Neuroethics,* ed. by Adrian Carter, Wayne Hall and Judy Illes (London: Elsevier), pp. 277–300

Miller, William R. and Ernest Kurtz. 1994. 'Models of alcoholism used in treatment: contrasting AA and other perspectives with which it is often confused', *Journal of Studies on Alcohol*, 55.2: 159–166 <https://psycnet.apa.org/doi/10.15288/jsa.1994.55.159>

Milner, Peter M. 1989. 'The discovery of self–stimulation and other stories', *Neuroscience and Biobehavioral Reviews*, 13: 61–67 <https://doi.org/10.1016/S0149-7634(89)80013-2>

Miner, Benjamin G., Sonia E. Sultan, Steven G. Morgan, Dianna K. Padilla, and Rick A. Relyea. 2005. 'Ecological Consequences of Phenotypic Plasticity', *Trends in Ecology & Evolution*, 20.12: 685–92 <https://doi.org/10.1016/j.tree.2005.08.002>

Mintz, Sidney W. 1986. *Sweetness and Power: The Place of Sugar in Modern History* (London: Penguin)

Montgomery, John. 2018. 'Evolutionary Mismatch, Emotional Homeostasis, and "Emotional Addiction": A Unifying Model of Psychological Dysfunction', *Evolutionary Psychological Science*, 4.4: 428–42 <https://doi.org/10.1007/s40806-018-0153-9>

Moore, Gerald. 2013. 'Adapt and Smile or Die! Stiegler Among the Darwinists', in *Stiegler and Technics,* ed. by Christina Howels and Gerald Moore (Edinburgh: Edinburgh University Press), pp. 17–33

———. 2017a. 'Dopamining and Disadjustment: Addiction and Digital Capitalism', in *Are We All Addicts Now?*, ed. by Vanessa Bartlett & Henrietta Bowden-Jones (Liverpool: Liverpool University Press), pp. 69–75

———. 2017b. 'On the origin of *aisthesis* by means of artificial selection; Or, the preservation of favored traces in the struggle for existence', *Boundary 2,* 44.1: 191–212

———. 2018. 'The pharmacology of addiction', *Parrhesia*, 29: 190–211

———. 2019a. 'Automations, Technological and Nervous: Addiction Epidemics from Athens to Fake News', *New Formations,* 98.1: 119–138

———. 2019b. 'Philosophy and Other Addictions: On use and abuse in the history of life', in *Freedom and the Subject of Theory: Essays in Honour of Christina Howells*, ed. by Oliver Davis and Colin Davis (Cambridge: Legenda)

Moore, Gerald and Bernard Stiegler. 2020. 'Detox politics: Thinking-Salving the Retreat of the Public', in *Politics of Withdrawal: Media, Arts, theory,* ed. by Pepita Hesselberth and Joost de Bloois (London: Rowman & Littlefield), pp.161–182

Moos, Rudolf H. and Bernice S. Moos. 2006. 'Participation in Treatment and Alcoholics Anonymous: A 16-Year Follow-up of Initially Untreated Individuals', *Journal of Clinical Psychology*, 62.6: 735–50 <https://doi.org/10.1002/jclp.20259>

Morgan, Nirvana and Sumaya Mall. 2019. 'Pathways between Urbanization and Harmful Substance Use', *Current Opinion in Psychiatry*, 32.3: 218–23 <https://pubmed.ncbi.nlm.nih.gov/30695003>

Moustafa, Ahmed A., Alejandro N. Morris, Jean Louis Nandrino, Błażej Misiak, Monika Szewczuk-Bogusławska, and others. 2018. 'Not All Drugs Are Created Equal: Impaired Future Thinking in Opiate, but Not Alcohol, Users', *Experimental Brain Research*, 236.11: 2971–81 <https://doi.org/10.1007/s00221-018-5355-7>

Muldoon, Sascha. 2005. 'Hogarth's "Gin Lane" and "Beer Street"', *International Journal of Surgery*, 3.2: 159–62 <https://doi.org/10.1016/j.ijsu.2005.03.006>

Müller, Christian P. and Gunter Schumann. 2011. 'Drugs as Instruments: A New Frameworkfor Non-Addictive Psychoactive Drug Use', *The Behavioral and Brain Sciences*, 34.6: 293–310 <https://doi.org/10.1017/S0140525X11000057>

Nacke, Lennart E. and Craig A. Lindley. 2009. 'Affective Ludology, Flow and Immersion in a First-Person Shooter: Measurement of Player Experience', *ArXiv [Cs.HC]* <http://arxiv.org/abs/1004.0248>

Nathan, Peter E., Mandy Conrad, and Anne Helene Skinstad. 2016. 'History of the Concept of Addiction', *Annual Review of Clinical Psychology*, 12.1: 29–51 <https://doi.org/10.1146/annurev-clinpsy-021815-093546>

National Institute on Drug Abuse. 2018. *Principles of Drug Addiction Treatment: A Research Based Guide,* 3rd edn (Washington DC: National Institute on Drug Abuse)

———. 2020 *Drugs, Brains, and Behavior: The Science of Addiction*, revised edn (Washington DC: National Institute on Drug Abuse)

Nestler, Eric J. 2005. 'Is There a Common Molecular Pathway for Addiction?', *Nature Neuroscience*, 8.11: 1445–49 <https://doi.org/10.1038/nn1578>

Netherland, Julie and Helena Hansen. 2016. 'White Opioids: Pharmaceutical Race and the War on Drugs That Wasn't', *BioSocieties*, 12.2: 217–38 <https://doi.org/10.1057/biosoc.2015.46>

Newman, Tanya. 2017. 'Creating the role: How dramatherapy can assist in re/creating an identity with recovering addicts', *Dramatherapy,* 38.2/3: 106–123 <https://doi.org/10.1080%2F02630672.2017.1340492>

Nichols, John R., Cecil P. Headlee, and Harold W. Coppóck. 1956. 'Drug Addiction I. Addiction by Escape Training', *Journal of the American Pharmaceutical Association*, 45.12: 788–91 <https://doi.org/10.1002/jps.3030451206>

Nietzsche, Friedrich Wilhelm. 1998[1889]. *Twilight of the Idols: Or, How to Philosophize with the Hammer*,trans. by Duncan Large (Oxford, England: Oxford Paperbacks)

Nin, Anais. 1966[1934]. *The Diary of Anais Nin 1931–1934* (New York: The Swallow Press)

Nissen, Morten. 2002. 'To Be and Not to Be', *Outlines. Critical Practice Studies*, 4.2: 39–60

———. 2012. 'Writing Drug Cultures', *Culture & Psychology*, 18.2: 198–218 <https://doi.org/10.1177/1354067x11434838>

———. 2021. *Rearticulating Motives-Synopsis*. Unpublished manuscript.

Obenchain, Roland. 1928. 'Roman Law of Bankruptcy', *The Notre Dame Law Review*, 3.4: 169a <http://scholarship.law.nd.edu/ndlr/vol3/iss4/1> [accessed 2 May 2022]

O'Brien, Charles. 2010. 'Addiction and Dependence in DSM-V', *Addiction*, 106.5: 866–67 https://doi.org/10.1111/j.1360-0443.2010.03144.x

O'Brien, Dave. 2020. "Class and the Problem of Inequality in Theatre," *Studies in Theatre and Performance*, 40.3: 242–50 <https://doi.org/10.1080/14682761.2020.1807212>

Odling-Smee, F. John, Kevin N. Laland, and Marcus W. Feldman. 2003. *Niche Construction: The Neglected Process in Evolution* (Princeton, NJ: Princeton University Press)

Olasky, Marvin N. 1985. 'Bringing "Order Out of Chaos": Edward Bernays and the Salvation of Society Through Public Relations', *Journalism History*, 12.1: 17–21

Olds, James. 1956. 'Pleasure Centers in the Brain', *Scientific American*, 195.4: 105–17 <https://doi.org/10.1038/scientificamerican1056-105>

———. 1958. 'Self-Stimulation of the Brain: Its Use to Study Local Effects of Hunger, Sex, and Drugs', *Science*, 127: 315–324 <https://doi.org/10.1126/science.127.3294.315>

Olds, James and Peter Milner. 1954. 'Positive Reinforcement Produced by Electrical Stimulation of Septal Area and Other Regions of Rat Brain', *Journal of Comparative and Physiological Psychology*, 47.6: 419–27 https://doi.org/10.1037/h0058775

Olievenstein, Claude. 1997. "Le toxicomane domestiqué," *Le Monde diplomatique* https://www.monde-diplomatique.fr/1997/11/OLIEVENSTEIN/5000 [accessed 23 February 2023]

O'Malley, Maureen A. 2015. "Endosymbiosis and Its Implications for Evolutionary Theory," *Proceedings of the National Academy of Sciences of the United States of America*, 112.33: 10270–77 <https://doi.org/10.1073/pnas.1421389112>

O'Neal, Christen M., Cordell M. Baker, Chad A. Glenn, Andrew K. Conner, and Michael E. Sughrue. 2017. 'Dr. Robert G. Heath: A Controversial Figure in the History of Deep Brain Stimulation', *Neurosurgical Focus*, 43.3: E12 <https://doi.org/10.3171/2017.6.FOCUS17252>

Page, Penny Booth. 1997. 'E. M. Jellinek and the Evolution of Alcohol Studies: A Critical Essay', *Addiction*, 92.12: 1619–37 <https://doi.org/10.1111/j.1360-0443.1997.tb02882.x>

Palm, Fredrik. 2021. 'Working the Self: Truth-Telling in the Practice of Alcoholics Anonymous', *Human Studies*, 44.1: 103–20 <https://link.springer.com/article/10.1007/s10746-020-09569-w>

Panksepp, Jaak, Brian Knutson, and Jeff Burgdorf. 2002. 'The Role of Brain Emotional Systems in Addictions: A Neuro-Evolutionary Perspective and New "Self-Report" Animal Model: Role of Brain Emotional Systems in Addictions', *Addiction*, 97.4: 459–69 <https://doi.org/10.1046/j.1360-0443.2002.00025.x>

Park, Sungbok and Ha Sung Hwang. 2009. 'Understanding Online Game Addiction: Connection between Presence and Flow', in *Human-Computer Interaction. Interacting in Various Application Domains,* ed. by Julie A. Jacko (Berlin, Heidelberg: Springer Berlin Heidelberg), pp. 378–86

Paulus, Martin P. 2007. 'Decision-Making Dysfunctions in Psychiatry—Altered Homeostatic Processing?' *Science,* 318.5850: 602-606

Pearson, Geoffrey 2001. 'Drugs and Poverty', in *High Time for Reform: Drug Policy for the 21st Century,* ed. by Selina Chen and Edward Skidelsky (London: Social Market Foundation)

Peele, Stanton. 2020. 'So Alcoholics Anonymous Is "Proven" to Work after All? Not so Fast', *Filter* <https://filtermag.org/alcoholics-anonymous-cochrane/> [accessed 29 August 2022]

Peele, Stanton and Archie Brodsky. 2015[1975]. *Love and Addiction* (Broadrow Publications: Watertown, Massachusetts)

Pendyam, Sandeep, Ashwin Mohan, Peter W. Kalivas, and Satish S. Nair. 2012. 'Role of Perisynaptic Parameters in Neurotransmitter Homeostasis—Computational Study of a General Synapse', *Synapse*, 66.7: 608–21 <https://doi.org/10.1002/syn.21547>

Pendzik, Susana. 2006. 'On Dramatic Reality and Its Therapeutic Function in Drama Therapy', *The Arts in Psychotherapy*, 33.4: 271–80 <https://doi.org/10.1016/j.aip.2006.03.001>

Perring, Christian. 2002. 'Resisting the temptations of addiction rhetoric', *American Journal of Bioethics*, 2:51–2 <https://doi.org/10.1162/152651602317533712>

Petrie, B. F. 1996. 'Environment is not the most important variable in determining oral morphine consumption in Wistar rats', *Psychological Reports*, 78.2: 391–400

Petry, Nancy M. and Charles P. O'Brien. 2013. 'Internet Gaming Disorder and the DSM-5', *Addiction*, 108.7: 1186–87 <https://doi.org/10.1111/add.12162>

Pickard, Hanna. 2021. 'Is Addiction a Brain Disease? A Plea for Agnosticism and Heterogeneity', *Psychopharmacology*, 239.4: 993–1007 <https://doi.org/10.1007/s00213-021-06013-4>

Pickard, Hanna and Serge H. Ahmed. 2017. 'How do you know you have a drug problem? The role of knowledge of negative consequences in explaining drug choice in humans and rats', in *Addiction and Choice: Rethinking the Relationship*, ed. by Nick Heather & Gabriel Segal (Oxford: Oxford University Press), pp. 29–48

Pinna, F., B. Dell'Osso, M. Di Nicola, L. Janiri, A.C. Altamura, B. Carpiniello and E. Hollander. 2015. 'Behavioural Addictions and the Transition from DSM-IV-TR to DSM-5', *Journal of Psychopathology*, 21.4: 380–9

Plank, Karl A. 2021. *The Fact of the Cage: Reading and Redemption in David Foster Wallace's Infinite Jest* (New York and London: Routledge)

Plato. 1998. *Phaedrus,* trans. by J.H. Nichols (New York: Cornell University Press)

Polanyi, Karl. 2004[1944]. *The Great Transformation: Political and Economic Origins of Our Time* (Boston, MA: Beacon Press)

Politzer, Georges. 1994. *Critique des Fondements de la Psychologie: La Psychologie et la Psychanalyse* (Paris: Presses Universitaires de France – PUF)

Porter, Roy. 1988. *Introduction to Facsimile Edition of Trotter's Essay on Drunkenness* (London: Routledge)

Potenza, Marc N. 2007. 'To Do or Not to Do? The Complexities of Addiction, Motivation, Self-Control, and Impulsivity', *The American Journal of Psychiatry*, 164.1: 4–6 <https://doi.org/10.1176/ajp.2007.164.1.4>

———. 2014. 'Non-substance addictive behaviors in the context of DSM-5', *Addictive Behaviors*, 39: 1–2 <10.1016/j.addbeh.2013.09.004>

Potts, Richard. 2002. 'Complexity and adaptability in human evolution', in *Probing Human Origins,* ed. by M. Goodman, Anne Simon Moffat, and Robert Boyd (Cambridge: American Academy of Arts and Sciences), pp. 33–57

Preble, Edward, and John J. Casey. 1969. 'Taking Care of Business—The Heroin User's Life on the Street', *International Journal of the Addictions*, 4.1: 1-24

Previc, Fred H. 2009. *The Dopaminergic Mind in Human Evolution and History* (Cambridge: Cambridge University Press)

———. 2011. 'Dopamine, Altered Consciousness, and Distant Space with Special Reference to Shamanic Ecstasy', *Altering Consciousness: A Multidisciplinary Perspective*, 2: 43–61

Proudfoot, Jesse. 2019. 'Traumatic Landscapes: Two Geographies of Addiction', *Social Science & Medicine*, 228: 194–201 <https://doi.org/10.1016/j.socscimed.2019.03.020>

Puker, Anderson, Cassiano S. Rosa, Jesús Orozco, Ricardo R. C. Solar, and Rodrigo M. Feitosa. 2015. 'Insights on the Association of American Cetoniinae Beetles with Ants: Myrmecophily in Beetles', *Entomological Science*, 18.1: 21–30 <https://doi.org/10.1111/ens.12085>

Quiñones, Gloria, and Marilyn Fleer. 2011. '"Visual Vivencias": A Cultural-Historical Tool for Understanding the Lived Experiences of Young Children's Everyday Lives', in *Educational Research with Our Youngest*, ed. by Eva Johansson, E. Jayne White (Dordrecht: Springer Netherlands), pp. 107–33

Rado, Sandor. 1953. 'Dynamics and Classification of Disordered Behavior', *The American Journal of Psychiatry*, 110.6: 406–16 <https://doi.org/10.1176/ajp.110.6.406>

———. 1962. *Psychoanalysis of Behavior. Collected Papers, vol. II: 1956–1961* (New York: Grune & Stratton)

———. 1997[1933]. 'The psychoanalysis of pharmacothymia (Drug Addiction)', *Psychoanalytic Quarterly*, 2: 1–23, reprinted in *Essential Papers on Addiction,* ed. by Daniel L. Yalisove (New York and London: New York University Press), pp. 52–68

Reckner, Paul E. and Stephen A. Brighton. 1999. '"Free from All Vicious Habits": Archaeological Perspectives on Class Conflict and the Rhetoric of Temperance', *Historical Archaeology*, 33.1: 63–86 <https://doi.org/10.1007/bf03374280>

Reinarman, Craig. 2005. 'Addiction as Accomplishment: The Discursive Construction of Disease', *Addiction Research & Theory*, 13.4: 307–20 <https://doi.org/10.1080/16066350500077728>

Reinert, Duane F. and John P. Allen. 2007. 'The Alcohol Use Disorders Identification Test: An Update of Research Findings', *Alcoholism, Clinical and Experimental Research*, 31.2: 185–99 <https://doi.org/10.1111/j.1530-0277.2006.00295.x>

Reith, Gerda. 1999. 'In Search of Lost Time: Recall, Projection and the Phenomenology of Addiction', *Time & Society*, 8.1: 99–117 <https://doi.org/10.1177/0961463x99008001005>

Reynolds, James and Zoe Zontou (Eds). 2014. *Addiction and Performance* (Newcastle: Cambridge Scholars, 2014)

Rilke, Rainer M. 1977 [1922]. *Duino Elegies and The Sonnets to Orpheus,* trans. by A. Poulin Jr (Boston: Houghton Mifflin)

Rinella, Michael A. 2011. *Pharmakon: Plato, Drug Culture, and Identity in Ancient Athens* (Lanham, MD: Lexington Books)

Robins, Lee. N., Darlene H. Davis, and Donald W. Goodwin. 1974. 'Drug Use by U.S. Army Enlisted Men in Vietnam: A Follow–up on Their Return Home', *American Journal of Epidemiology*, 99.4: 235–49 <https://doi.org/10.1093/oxfordjournals.aje.a121608>

Robinson, Terry E. and Kent C. Berridge. 1993. 'The Neural Basis of Drug Craving: An Incentive-Sensitization Theory of Addiction', *Brain Research Reviews*, 18.3: 247–91 <https://doi.org/10.1016/0165-0173(93)90013-p>

———. 2000. 'The Psychology and Neurobiology of Addiction: An Incentive-Sensitization View', *Addiction*, 95.8s2: 91–117 <10.1080/09652140050111681>

Rochard Jean, Birge Jean-Jacques and Bernard Stiegler. (2020). Bernard Stiegler, la musique est la premiere technique du desir. Hommage a Bernard Stiegler. Des Allumes du Jazz 21. <https://www.lesallumesdujazz.com/actualite-la-musique-est-la-premiere-technique-du-desir-hommage-a-bernard-stiegler,721.html#player1?catid=0&trackid=0>[Accessed 8th August 2022]

Rodriguez, Eloy and Richard Wrangham. 1993. 'Zoopharmacognosy: The Use of Medicinal Plants by Animals', in in *Phytochemical Potential of Tropical Plants,* ed. by Kelsey R. Downum, John T. Romeo and Helen A. Stafford (Boston, MA: Springer US), pp. 89–105

Roddy, Juliette, Caren L. Steinmiller, and Mark K. Greenwald. 2011. 'Heroin Purchasing Is Income and Price Sensitive', *Psychology of Addictive Behaviors*, 25.2: 358–64 <https://doi.org/10.1037/a0022631>

Rohrer, James R. 1990. 'The origins of the temperance movement: A reinterpretation', *Journal of American Studies*, 24.2: 228–235 <https://www.jstor.org/stable/27555317>

Rolls, Edmund T. 2000. 'Précis of The Brain and Emotion', *The Behavioral and Brain Sciences*, 23.2: 177–91; discussion 192–233 <https://doi.org/10.1017/s0140525x00002429>

Ronell, Avital. 2004[1992]. *Crack Wars: Literature Addiction Mania* (Baltimore, MD: University of Illinois Press).

Rorabaugh, William J. 2018. *Prohibition: A Concise History* (Oxford: Oxford University Press)

Room, Robin 1993. 'Alcoholics Anonymous as a social movement', in *Research on Alcoholics Anonymous: Opportunities and Alternatives*, ed. by Barbara S. McCrady & William R. Miller New Brunswick, NJ: Rutgers Center of Alcohol Studies), pp. 167–187 <https://www.robinroom.net/alcoanon.pdf> [Accessed 5th November 2021]

———. 2015. 'The history of psychoactive substance use and problems and of social responses to them', in *Addiction Medicine: Principles and Practice,* ed. by Paul Haber, Carolyn Day and Michael Farrell (Melbourne: IP Communications), pp. 3–8 <http://www.robinroom.net/History%20psyact%20subst%20use%20probs%20%20-%20Haber%20et%20al%20book%20-%202015%20-%20Word.pdf> [Accessed 1st February 2022]

Rosenthal, Richard J. and Suzanne B. Faris. 2019. 'The Etymology and Early History of "Addiction"', *Addiction Research & Theory*, 27.5: 437–49 <https://doi.org/10.1080/16066359.2018.1543412>

Roudinesco, Élisabeth. 2016. Freud: In his time and ours, trans. by Catherine Porter (New York: Harvard University Press)

Royal College of Psychiatrists. 2020. 'Addiction services not equipped to treat the 8 million people drinking at high risk during pandemic, warns Royal College: Press release 14 September 2020' <https://www.rcpsych.ac.uk/news-and-features/latest-news/detail/2020/09/14/addiction–servies–not–equipped–to–treat–the–8–million-people–drinking–at–high–risk–during–pandemic–warns–royal–college> [Accessed 17 September 2021]

Rozin, Paul. 1999. 'Preadaptation and the puzzles and properties of pleasure', in *Well-being: The Foundations of Hedonic Psychology,* ed. by Daniel Kahneman, Edward Diener and Norbert Schwarz (New York: Russell Sage), pp. 109–133

Rubtsova, Olga V. and Harry Daniels. 2016. 'The Concept of Drama in Vygotsky's Theory: Application in Research', *Cultural-Historical Psychology*, 12.3: 189–207 <https://doi.org/10.17759/chp.2016120310>

Rush, Benjamin. 1810[1791]. *An Inquiry into the Effects of Ardent Spirits Upon the Human Body and Mind: With an Account of The Means of Preventing, And of The Remedies for Curing Them* (Exeter)

———. 1812. *Medical Inquiries and Observations Upon the Diseases of the Mind* (Philadelphia: Kimber and Richardson)

———. 1947. *Selected Writings of Benjamin Rush* (New York: Philosophical Library), Cited in Burn, Stephen. 2003. *David Foster Wallace's Infinite Jest* (New York & Continuum)

Rushton Bill. 1974. 'The Mysterious Experiments of Dr. Heath in Which We Wonder Who Is Crazy and Who is Sane', *Vieux Carre Courier (Aug. 29 – Sept. 4)*

Saah, Tammy. 2005. 'The Evolutionary Origins and Significance of Drug Addiction', *Harm Reduction Journal*, 2.1: 1–7 <https://doi.org/10.1186/1477-7517-2-8>

Salamone, J. D., M. S. Cousins, and B. J. Snyder. 1997. 'Behavioral Functions of Nucleus Accumbens Dopamine: Empirical and Conceptual Problems with the Anhedonia Hypothesis', *Neuroscience and Biobehavioral Reviews*, 21.3: 341–59 <https://doi.org/10.1016/s0149-7634(96)00017-6>

Salimpoor, Valorie N., Mitchel Benovoy, Kevin Larcher, Alain Dagher, and Robert J. Zatorre. 2011. 'Anatomically Distinct Dopamine Release during Anticipation and Experience of Peak Emotion to Music', *Nature Neuroscience*, 14.2: 257–62 <https://doi.org/10.1038/nn.2726>

Samorini, Giorgio. 2002. *Animals and Psychedelics: The Natural World and the Instinct to Alter Consciousness* (New York: Simon and Schuster)

Sapp, Jan. 2003. *Genesis: The Evolution of Biology* (New York, NY: Oxford University Press)

Satel, Sally and Scott O. Lilienfeld. 2014. 'Addiction and the Brain-Disease Fallacy', *Frontiers in Psychiatry*, 4: 141 <https://doi.org/10.3389/fpsyt.2013.00141>

Schivelbusch, Wolfgang. 1992. *Tastes of Paradise: A Social History of Spices, Stimulants, and Intoxicants* (New York: Pantheon Books)

Schacter, Daniel L., Roland G. Benoit, and Karl K. Szpunar. 2017. 'Episodic Future Thinking: Mechanisms and functions', *Current Opinion in Behavioral Sciences,* 17: 41–50 <10.1016/j.cobeha.2017.06.002>

Schaef, Anne Wilson. 1988. *When Society Becomes an Addict* (New York: Harper Collins)

Schenk, Susan, Gary Lacelle, Kathleen Gorman and Zalman Amit. 1987. 'Cocaine Self-administration in Rats Influenced by Environmental Conditions: Implications for the Etiology of Drug Abuse', *Neuroscience Letters*, 81.1/2: 227–231 <https://doi.org/10.1016/0304-3940(87)91003-2>

Schmeling, Gareth L. 2020. *Petronius's* Satyricon (New York: Harvard University Press)

Schoenbaum, Geoffrey, Chun–Yun Chang, Federica Lucantonio, and Yuji K. Takahashi. 2016. 'Thinking Outside the Box: Orbitofrontal Cortex, Imagination, and How We Can Treat Addiction', *Neuropsychopharmacology*, 41.13: 2966–76 <https://doi.org/10.1038/npp.2016.147>

Schüll, Natasha Dow. 2012. *Addiction by Design: Machine Gambling in Las Vegas* (Princeton, NJ: Princeton University Press)

———. 2021. 'Devices and selves: From Self-exit to Self-fashioning', in *Digital Anthropology,* ed. by Haidy Geismar and Hannah Knox (London: Routledge), pp. 137–156

Schultz, Wolfram. 1998. 'Predictive Reward Signal of Dopamine Neurons', *Journal of Neurophysiology*, 80.1: 1–27 <https://doi.org/10.1152/jn.1998.80.1.1>

Seddon, Toby. 2006. 'Drugs, Crime and Social Exclusion: Social Context and Social Theory in British Drugs-Crime Research', *British Journal of Criminology*, 46.4: 680–703 <https://doi.org/10.1093/bjc/azi079>

———. 2009. *A History of Drugs: Drugs and Freedom in the Liberal Age* (London: Routledge)

Sedgwick, Eve. K. 1993. *Tendencies* (Durham: Duke University Press)

Seligman, Martin E. P., Tracy A. Steen, Nansook Park, and Christopher Peterson. 2005. 'Positive Psychology Progress: Empirical Validation of Interventions', *The American Psychologist*, 60.5: 410–21 <https://doi.org/10.1037/0003-066X.60.5.410>

Seo, Dongju and Rajita Sinha. 2015. 'Neuroplasticity and Predictors of Alcohol Recovery', *Alcohol Research: Current Reviews*, 37.1: 143–52

Severns, Jen Royce. 2004. 'A sociohistorical view of addiction and alcoholism', *Janus Head*, 7.1: 149–166

Shaffer, Howard J. 1986. 'Conceptual Crises and the Addictions: A Philosophy of Science Perspective', *Journal of Substance Abuse Treatment*, 3.4: 285–96 <https://doi.org/10.1016/0740-5472(86)90042-5>

———. 1997. 'The Most Important Unresolved Issue in the Addictions: Conceptual Chaos', *Substance Use & Misuse*, 32.11: 1573–80 <https://doi.org/10.3109/10826089709055879>

Shaham, Yavin, Kevin Alvares, Stephanie M. Nespor, and Neil E. Grunberg. 1992. 'Effect of Stress on Oral Morphine and Fentanyl Self-Administration in Rats', *Pharmacology, Biochemistry, and Behavior*, 41.3: 615–19 <https://doi.org/10.1016/0091-3057(92)90382-p>

Shakespeare, William. 2005. *Othello*, ed. by Kenneth Muir (London, England: Penguin Classics)

———. 2010. *Henry V*, ed. by A. R. Humphreys (London, England: Penguin Classics)

Shorter, Edward. 1997. *A History of Psychiatry: From the Era of the Asylum to the Age of Prozac* (London: Wiley)

———. 2013. 'The History of DSM', in *Making the DSM–5,* ed. by Joel Paris and James Phillips, (New York, NY: Springer), pp. 3–19 <https://link.springer.com/content/pdf/bfm:978-1-4614-6504-1/1.pdf>

Siegel, Ronald K. 2005. *Intoxication: The Universal Drive for Mind-Altering substances,* 2nd edn (Rochester, Vermont: Park Street Press)

Silberschatz, Marc. 2013. 'Creative State / Flow State: Flow Theory in Stanislavsky's Practice', *New Theatre Quarterly*, 29.1: 13–23 <https://doi.org/10.1017/s0266464x1300002x>

Simondon, Gilbert. 1992. 'The genesis of the individual', in *Incorporations: Zone 6,* ed. by Jonathan Crary & Sanford Kwinter (New York: Zone), pp. 296–319

———. 2017[1958]. *On the Mode of Existence of Technical Objects*, trans. by Cecile Malaspina and John Rogove (Minneapolis, MN: University of Minnesota Press)

———. 2020[2005]. *Individuation in Light of Notions of Form and Information,* trans. by Taylor Adkins (Minneapolis, MN & London: University of Minnesota Press)

Simpson, Zachary. 2012. 'The Truths We Tell Ourselves: Foucault on *Parrhesia*', *Foucault Studies*: 99–115 <https://doi.org/10.22439/fs.v0i13.3461>

Singer, Michael S., Kevi C. Mace, and Elizabeth A. Bernays. 2009. 'Self-Medication as Adaptive Plasticity: Increased Ingestion of Plant Toxins by Parasitized Caterpillars', *PloS One*, 4.3: e4796 <https://doi.org/10.1371/journal.pone.0004796>

Sjöstrand, Manne, Stefan Eriksson, Niklas Juth, and Gert Helgesson. 2013. 'Paternalism in the Name of Autonomy', *The Journal of Medicine and Philosophy*, 38.6: 710–24 <https://doi.org/10.1093/jmp/jht049>

Skelly, Julia. 2014. *Addiction and British Visual Culture, 1751-1919: Wasted Looks* (Farnham, England: Ashgate Publishing)

Slingerland, Edward. 2021. *Drunk: How We Sipped, Danced, and Stumbled Our Way to Civilization* (New York, NY: Little, Brown & Company)

Sloterdijk, Peter. 2009. 'Rules for the Human Zoo: A response to the Letter on Humanism', *Environment and Planning D: Society and Space*, 27.1: 12–28 <https://doi.org/10.1068%2Fdst3>

Smail, Daniel Lord. 2008. *On Deep History and the Brain* (Berkeley Los Angeles London: University of California Press)

———. 2012. 'Psychotropy and the patterns of power in human history', in *Environment, Culture and the Brain: New Explorations in Neurohistory,* ed. by Edmund Russell (Rachel Carson Center Perspectives), pp. 43–48

Smith, Euclid O. 1999. 'Evolution, substance abuse, and addiction', in *Evolutionary Medicine*, ed. by Wenda Trevathan, Smith, Euclid O. & James J. Mckenna (New York: Oxford University Press), pp. 375–405

Smith, Kyle S. and Kent C. Berridge. 2007. 'Opioid Limbic Circuit for Reward: Interaction between Hedonic Hotspots of Nucleus Accumbens and Ventral Pallidum', *The Journal of Neuroscience*, 27.7: 1594–1605 <https://doi.org/10.1523/JNEUROSCI.4205-06.2007>

Snodgrass, Sam. 2018. '"Rat Park" Studies Don't Prove Isolation Causes Addiction', *Alcoholism & Drug Abuse Weekly*, 30.24: 7–7 <https://doi.org/10.1002/adaw.32005>

Snyder, Alison. 2016. "Robert L Spitzer," *Lancet*, 387.10017: 428 <https://doi.org/10.1016/S0140-6736(16)00182-3>

Sobell, Linda C., John A. Cunningham, and Mark B. Sobell. 1996. 'Recovery from Alcohol Problems with and without Treatment: Prevalence in Two Population Surveys', *American Journal of Public Health*, 86.7: 966–72 <https://doi.org/10.2105/ajph.86.7.966>

Soffia, Magdalena, Alex J. Wood, and Brendan Burchell. 2021. 'Alienation Is Not "Bullshit": An Empirical Critique of Graeber's Theory of BS Jobs', *Work, Employment & Society: A Journal of the British Sociological Association*: 095001702110150 <https://doi.org/10.1177/09500170211015067>

Solmonson, Lesley Jacobs. 2012. *Gin: A Global History* (London: Reaktion Books)

Spengler, Oswald. 1973. *Man and Technics: A Contribution to a Philosophy of Life*, 2nd edn, trans. by C. F. Atkinson (St Leonards, NSW, Australia: Allen & Unwin)

Spinelli, Carmella and Bruce A. Thyer. 2017. 'Is Recovery from Alcoholism without Treatment Possible? A Review of the Literature', *Alcoholism Treatment Quarterly*, 35.4: 426–44 <https://doi.org/10.1080/07347324.2017.1355219>

Springer, Wanda. 2006. 'Poetry in therapy: A way to heal for trauma survivors and clients in recovery from addiction', *Journal of Poetry Therapy*, 19:2, 69-81, <10.1080/08893670600756632>

Stanislavski, Konstantin. 2008. *An Actor's Work: A Student's Diary,* trans. by Jean Benedetti (London & New York: Routledge)

Sterelny, Kim. 2012. *The Evolved Apprentice: How Evolution Made Humans Unique* (Cambridge, MA: Bradford Books)

Stetsenko, Anna. 2016. *The Transformative Mind: Expanding Vygotsky's Approach to Development and Education* (Cambridge: Cambridge University Press)

Stavrakakis, Yannis. 2006. 'Objects of Consumption, Causes of Desire: Consumerism and Advertising in Societies of Commanded Enjoyment', *Gramma: Journal of Theory and Criticism*, 14: 83–105

Stiegler, Bernard. 1998[1994]. Stiegler, Bernard. 1998[1994]. *Technics and Time Volume 1: The Fault of Epimetheus,* trans. by Richard Beardsworth & George Collins (Stanford, California: Stanford University Press)

———. 2009[1996]. *Technics and Time Volume 2: Disorientation,* trans. by Stephen Barker (Stanford, California: Stanford University Press)

———. 2009[2003]. *Acting out* trans. by D. Barison, Daniel Ross, and Patrick Crogan (Stanford, California: Stanford University Press)

———. 2010[2009]. *For a New Critique of Political Economy,* trans. by Daniel Ross (London: Polity)

———. 2011. 'Pharmacology of Desire: Drive–Based Capitalism and Libidinal Dis-Economy', *New Formations*, 72.72: 150–61 <https://doi.org/10.3898/newf.72.12.2011>

———. 2011[2004]. *The Decandence of Industrial Democracies: Disbelief and Discredit, vol.* 1, trans. By Daniel Ross and Suzanne Arnold (London: Polity)

———. 2010[2008]. *Taking Care of the Youth and the Generations*, trans. by Stephen Barker (Stanford, California: Stanford University Press)

———. 2012. 'Société Addictogène, Social Engineering et Écologie Relationnelle', in *Prévenir et Traiter les Addictions Sans Drogue: Un Défi Social,* ed. by Jean-Luc Vénisse and Marie Grall-Bronnec (Elsevier Masson), pp. 17–21

———. 2013[2006]. *Uncontrollable Societies of Disaffected Individuals: Disbelief and Discredit, vol. 2*, trans. by Daniel Ross (London: Polity)

———. 2013[2010]. *What Makes Life Worth Living: On Pharmacology*, trans. by Daniel Ross (London: Polity)

———. 2014[2006]. *The Lost Spirit of Capitalism: Disbelief and Discredit, vol.* 3 trans. by Daniel Ross (London: Polity)

———. 2014[2004]. *Symbolic Misery Vol. 1: The Hyper-industrial Epoch*, trans. by Barnaby Newman (London: Polity)

———. 2015[2005]. *Symbolic Misery Vol. 2: The katastrophē of the sensible*, trans. by Barnaby Newman (London: Polity)

———. 2013. *Pharmacologie du Front national: Suivi du vocabulaire d' Ars Industrialis* (Paris: Flammarion)

———. 2016[2015]. *Automatic Society Volome 1: The future of work*, trans. Daniel Ross (London: Polity)

———. 2017. 'The Proletarianization of Sensibility', *Boundary 2*, 44.1, trans. by Arne De Boever: 5–18 <https://doi.org/10.1215/01903659–3725833>

———. 2019[2016]. *The Age of Disruption: Technology and Madness in Computational Capitalism*, trans. by Daniel Ross (London: Polity)

———. 2018. *The Neganthropocene*, trans. by Daniel Ross (Open Humanities Press)

———. 2021a. 'Elements for a Neganthropology of Automatic Man', *Philosophy Today,* 65.2: 241–264

———. 2021b. *Technics and Time 4*, trans. Daniel Ross (Unpublished draft)

Streeck, Wolfgang. 2016. *How Will Capitalism End? Essays on a Failing System* (London: Verso)

Strobbe, Stephen and Ernest Kurtz. 2012. 'Narratives for recovery: Personal stories in the "Big Book" of Alcoholics Anonymous', *Journal of Groups in Addiction & Recovery*, 7.1: 29–52 <https://doi.org/10.1080/1556035X.2012.632320>

Substance Abuse and Mental Health Services Administration (2012). *What's Recovery? SAMSHA's working definition.* Publication ID: PEP12–RECDEF

Sulkunen, Pekka and Katariina Warpenius. 2000. 'Reforming the Self and the Other: The Temperance Movement and the Duality of Modern Subjectivity', *Critical Public Health*, 10.4: 423–38 <https://doi.org/10.1080/09581590010005359>

Sullivan, Roger J. and Edward H. Hagen. 2002. 'Psychotropic Substance-Seeking: Evolutionary Pathology or Adaptation?', *Addiction,* 97.4: 389–400 <https://doi.org/10.1046/j.1360-0443.2002.00024.x>

Sullivan, Roger J., Edward H. Hagen and Peter Hammerstein. 2008. 'Revealing the paradox of drug reward in human evolution', *Proceedings of the Royal Society B: Biological Sciences*, *275*(1640), 1231–1241 <https://doi.org/10.1098/rspb.2007.1673>

Sun, Yan, Yangyang Li, Yanping Bao, Shiqiu Meng, Yankun Sun, and others. 2020. 'Brief Report: Increased Addictive Internet and Substance Use Behavior during the COVID-19 Pandemic in China', *The American Journal on Addictions*, 29.4: 268–70 <https://doi.org/10.1111/ajad.13066>

Szakolczai, Arpad. 2013. *Comedy and the Public Sphere: The Rebirth of Theatre as Comedy and the Genealogy of the Modern Public Arena* (London, England: Routledge)

Szalavitz, Maia. 2016. *Unbroken Brain: A Revolutionary New Way of Understanding Addiction* (New York, NY: St Martin's Press)

Talcott, Samuel. 2019. *Georges Canguilhem and the Problem of Error* (London: Palgrave Macmillan)

Tennie, Claudio, Josep Call, and Michael Tomasello. 2009. 'Ratcheting up the Ratchet: On the Evolution of Cumulative Culture', *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 364.1528: 2405–15 <https://doi.org/10.1098/rstb.2009.0052>

Thianthai, Chulanee. 2018. 'What Does Social Media Have to Do with Health? A Case Study of Bangkok Youths', *International Journal of Adolescent Medicine and Health*, 33.1 <https://doi.org/10.1515/ijamh-2018-0058>

Thompson, Richard F. 1999. 'James Olds, May 30, 1922 – August 21, 1976', in Biographical Memoirs. 77 (Washington, DC: National Academy of Sciences), pp. 246–263

Thompson, Travis. 1968. 'Drugs as reinforcers: Experimental addiction', *International Journal of the Addictions*, 3.1: 199–206 <https://doi.org/10.3109/10826086809042894>

Thorndike, Edward L. 1931. *Human Learning* (New York: Century)

Thornton, Mark. 1991. *Alcohol Prohibition Was a Failure. Policy Analysis Report no. 157* (Washington: Cato Institute)

Tice, Patricia M. 1992. *Altered States: Alcohol and Other Drugs in America* (Rochester, NY: Margaret Woodbury Museum)

Tiffany, Stephen T. 1990. 'A Cognitive Model of Drug Urges and Drug-Use Behavior: Role of Automatic and Nonautomatic Processes', *Psychological Review*, 97.2: 147–68 <https://doi.org/10.1037/0033-295x.97.2.147>

Torday, John S. 2015. 'Homeostasis as the Mechanism of Evolution', *Biology*, 4.3: 573–90 <https://doi.org/10.3390/biology4030573>

Trocki, Carl. 2012. *Opium, Empire and the Global Political Economy: A study of the Asian Opium Trade 1750–1950* (London: Routledge)

Triberti, Stefano, Luca Milani, Daniela Villani, Serena Grumi, Sara Peracchia, and others. 2018. 'What Matters Is When You Play: Investigating the Relationship between Online Video Games Addiction and Time Spent Playing over Specific Day Phases', *Addictive Behaviors Reports*, 8: 185–88 <https://doi.org/10.1016/j.abrep.2018.06.003>

Trotter, Thomas. 1988[1813]. *An Essay, Medical, Philosophical and Chemical on Drunkenness and its Effects on the Human Body* (Routledge: London)

Turner, Ben. 2021. '"ABOVE AND BEYOND THE MARKET": The Family, Social Reproduction, and Conservatism in Bernard Stiegler's Politics of Work', *Angelaki*, 26.6: 68–85 <https://doi.org/10.1080/0969725x.2021.1988379>

Tyrrell, Ian. 1997. 'The US Prohibition Experiment: Myths, History and Implications', *Addiction*, 92.11: 1405–9 <https://doi.org/10.1080/09652149736558>

UK Drug Policy Commission. 2008. *The UK drug policy commission recovery consensus group: A vision of recovery* (London: UK Drug Policy Commission)

United States Congress. 1914. Harrison Narcotics Tax Act 63–, Pub L. 1914. *Act* <https://govtrackus.s3.amazonaws.com/legislink/pdf/stat/38/STATUTE-38-Pg785.pdf> [Accessed 19 September 2022]

———. 1919a. *The 18th Amendment of the Constitution of the United States* <https://constitution.congress.gov/constitution/amendment-18/> [Accessed 19 September 2022]

———. 1919b. *National Prohibition Act. Pub. L. 66–66 U.S. Law* <https://govtrackus.s3.amazonaws.com/legislink/pdf/stat/41/STATUTE-41-Pg305a.pdf> [Accessed 24 September 2022]

Valery, Paul. 2005[1931]. *Regards Sur Le Monde Actuel* (Paris: Gallimard) <http://classiques.uqac.ca/classiques/Valery_paul/regards_sur_le_monde_actuel/valery_regards.pdf> [Accessed at 24 September 2022]

Valverde, Mariana. 1998. *Diseases of the Will: Alcohol and the Dilemmas of Freedom* (Cambridge: Cambridge University Press)

Valverde, Mariana and Kimberley White-Mair. 1999. '"One Day at a Time" and Other Slogans for Everyday Life: The Ethical Practices of Alcoholics Anonymous', *Sociology*, 33.2: 393–410

van der Veen, Marijke. 2014. "The Materiality of Plants: Plant–People Entanglements," *World Archaeology*, 46.5: 799–812 <https://doi.org/10.1080/00438243.2014.953710>

Vasilyuk, Fyodor. 1991. *The Psychology of Experiencing* (New York: Harvester Wheatsheaf)

Veresov, N. N. 2016. 'Perezhivanie as a Phenomenon and a Concept: Questions on Clarification and Methodological Meditations', *Cultural-Historical Psychology*, 12.3: 129–48 <https://doi.org/10.17759/chp.2016120308>

Vinogradskaia, I. N., *Zhizn i tvorchestvo K.S. Stanislavskovo*, 2 (2nd ed., Moscow: VTO, 2003), p. 444–5

Virilio, Paul. 2006. *The Original Accident*, trans. by Julie Rose (Oxford, England: Polity Press)

Volkow, Nora D. 2020. 'Collision of the COVID-19 and Addiction Epidemics', *Annals of Internal Medicine*, 173.1: 61–62 <https://doi.org/10.7326/M20-1212>

Volkow, Nora D., Joanna S. Fowler and Gene-Jack Wang. 2004. 'The Addicted Human Brain Viewed in the Light of Imaging Studies: Brain Circuits and Treatment Strategies', Neuropharmacology, 47: 3–13 <https://doi.org/10.1016/j.neuropharm.2004.07.019>

Volkow, Nora D. and George Koob. 2015. 'Brain Disease Model of Addiction: Why Is It So Controversial?', *The Lancet Psychiatry*, 2.8: 677–679 <https://doi.org/10.1016%2FS2215-0366(15)00236-9>

Volkow, Nora D., George Koob, and Ruben Baler. 2015. 'Biomarkers in Substance Use Disorders', *ACS Chemical Neuroscience*, 6.4: 522–25 <https://doi.org/10.1021/acschemneuro.5b00067>

Volkow, Nora D., George F. Koob, and A. Thomas McLellan. 2016. 'Neurobiologic Advances from the Brain Disease Model of Addiction', *The New England Journal of Medicine*, 374.4: 363–71 <https://doi.org/10.1056/nejmra1511480>

Volkow, Nora D., Roy A. Wise, and Ruben Baler. 2017. 'The Dopamine Motive System: Implications for Drug and Food Addiction', *Nature Reviews. Neuroscience*, 18.12: 741–52 <https://doi.org/10.1038/nrn.2017.130>

von Uexküll, Jakob. 2010[1934]. *A Foray into the Worlds of Animals and Humans: With A Theory of Meaning*, trans. by Joseph D. O'Neil (Minneapolis, MN: University of Minnesota Press)

Vrecko, Scott. 2010. 'Birth of a Brain Disease: Science, the State and Addiction Neuropolitics', *History of the Human Sciences*, 23.4: 52–67 <https://doi.org/10.1177/0952695110371598>

Vygotsky, Lev S. 1989. 'Concrete Human Psychology', *Soviet Psychology*, 27.2: 53–77 <https://doi.org/10.2753/RPO1061-0405270253>

———. 1994. 'The Problem of the Environment', in *The Vygotsky Reader*, ed. by Rene Van der Veer & Jaan Valsiner (Oxford: Blackwell), pp. 338–354

———. 1999. 'On the Problem of the Psychology of the Actor's Creative Work', in *The Collected Works of LS Vygotsky*, *vol. 6*, ed. by Robert W. Rieber (New York, NY: Springer), pp. 237–244

Wadley, Greg. 2016. 'How Psychoactive Drugs Shape Human Culture: A Multi-Disciplinary Perspective', *Brain Research Bulletin*, 126: 138–51 <https://doi.org/10.1016/j.brainresbull.2016.04.008>

Wallace, David Foster. 1993. 'E Unibus Pluram: Television and U.S. Fiction', *Review of Contemporary Fiction*, 13.2: 151–194

———. 2006[1996]. *Infinite Jest* (London: Abacus)

Watson, David and Kristin Naragon-Gainey. 2010. 'On the Specificity of Positive Emotional Dysfunction in Psychopathology: Evidence from the Mood and Anxiety Disorders and Schizophrenia/Schizotypy', *Clinical Psychology Review*, 30.7: 839–48 <https://doi.org/10.1016/j.cpr.2009.11.002>

'Webb v. United States, 249 U.s. 96 (1919)', Justia Law <https://supreme.justia.com/cases/federal/us/249/96/> [accessed 28 June 2022]

Werb, D., A. Kamarulzaman, M. C. Meacham, C. Rafful, B. Fischer, and others. 2016. 'The Effectiveness of Compulsory Drug Treatment: A Systematic Review', *The International Journal on Drug Policy*, 28: 1–9 <https://doi.org/10.1016/j.drugpo.2015.12.005>

West, Robert. 2001. 'Theories of Addiction', *Addiction,* 96.1: 3–13 <https://doi.org/10.1046/j.1360-0443.2001.96131.x>

White, William L. 2007. 'Addiction Recovery: Its Definition and Conceptual Boundaries', *Journal of Substance Abuse Treatment*, 33.3: 229–41 <https://doi.org/10.1016/j.jsat.2007.04.015>

———. 2008. 'Toward a philosophy of choice: A new era of addiction treatment', *Counselor*, 9.1: 38–43.

———. 2009. *Peer-based Addiction Recovery Support: History, theory, practice, and scientific evaluation* (Philadelphia: Great Lakes Addiction Technology Transfer Center)

———. 2014. *Slaying the dragon: the history of addiction treatment and recovery in America,* 2nd edn (Bloomington, IL: Chestnut Health Systems/Lighthouse Institute)

Whyman, Rose. 2007. 'The Actor's Second Nature: Stanislavski and William James', *New Theatre Quarterly*, 23.2: 115–23 <https://doi.org/10.1017/s0266464x07000024>

Wilde, Oscar. 1891. *The Picture of Dorian Gray* (London: Ward Locke and Co.)

Williams, Charlie. 2019. 'On "Modified Human Agents": John Lilly and the Paranoid Style in American Neuroscience', *History of the Human Sciences*, 32.5: 84–107 <https://doi.org/10.1177/0952695119872094>

Williams, Izaak L. and David Mee-Lee. 2019. 'Inside the Black Box of Traditional Treatment Programs: Clearing the Air on the Original Literary Teachings of Alcoholics Anonymous (AA)', *Addiction Research & Theory*, 27.5: 412–19 <https://doi.org/10.1080/16066359.2018.1540692>

Williams, James. 2008. *Jean Cocteau* (London, England: Reaktion Books)

Wilson, Bill. 1946. 'Anarchy melts', *The Grapevine*, July <https://aaagnostica.org/2011/06/22/anarchy-melts/> [Accessed 28th June 2022]

Winkelman, Michael. 2010. *Shamanism: A Biopsychosocial Paradigm of Consciousness and Healing* (Oxford, England, Denver Colorado, Santa Barbara, California: Praeger)

Winnicott, Donald W. 2005[1971]. *Playing and Reality* (London & New York: Routledge)

Wise, Roy A. 1980. 'The Dopamine Synapse and the Notion of "Pleasure Centers" in the Brain', *Trends in Neurosciences*, 3.4: 91–95 <https://doi.org/10.1016/0166-2236(80)90035-1>

———. 2004. 'Dopamine, Learning and Motivation', *Nature Reviews. Neuroscience*, 5.6: 483–94 <https://doi.org/10.1038/nrn1406>

Wittels, Fritz. 1946. 'The contribution of Benjamin Rush to psychiatry', *Bulletin of the History of Medicine*, 20.2: 157–166

Wong, Tai Tak Andy and Charles T. Wolfe. 2015. 'The Return of Vitalism: Canguilhem, Bergson and the Project of a Biophilosophy', in *The Care of Life,* ed. by Miguel de Beistegui, Giuseppe Bianco and Marjorie Gracieuse (London & New York: Rowman and Littlefield), pp. 63–77

Woodruff, Paul. 2008. *The Necessity of Theater: The Art of Watching and Being Watched* (New York, NY: Oxford University Press)

World Health Organization. 2004. *Neuroscience of Psychoactive Substance Use and Dependence* (Geneva, Switzerland: World Health Organization)

Wrbouschek, Markus and Thomas Slunecko. 2021. 'Tensed toward the Collective: A Simondonian Perspective on Human Experience in Context', *Theory & Psychology*, 31.1: 43–60 <https://doi.org/10.1177/0959354320943294>

Wyatt, Letisha R. 2016. 'Brain Homeostasis and Addiction', in *Homeostatic Control of Brain Function,* Detlev Boison & Susan A. Masino (Oxford: Oxford University Press), pp. 509–534

Yaroshevsky, Mikhail G. 1992. 'Vygotsky i marksizm v sovetskoj psikhologii [Vygotsky and Marxism in Soviet psychology]', *Psikhologicheskii Zhurnal*, 13.5: 84–96

Zeberg, Hugo, Michael Dannemann, Kristoffer Sahlholm, Kristin Tsuo, Tomislav Maricic, and others. 2020. 'A Neanderthal Sodium Channel Increases Pain Sensitivity in Present-Day Humans', *Current Biology: CB*, 30.17: 3465-3469.e4 <https://doi.org/10.1016/j.cub.2020.06.045>

Zontou, Zoe. 2012. '"Applied theatre as an "alternative substance": Reflections from an applied theatre project with people in recovery from alcohol and drug dependency', *Journal of Applied Arts & Health* 2.3: 303–315

Appendix

The 12 Steps of AA

AA's 12-Step approach follows a set of guidelines designed as "steps" toward recovery, and members can revisit these steps at any time. The 12 Steps are:

1. We admitted we were powerless over alcohol—that our lives had become unmanageable.
2. Came to believe that a Power greater than ourselves could restore us to sanity.
3. Made a decision to turn our will and our lives over to the care of God as we understood Him.
4. Made a searching and fearless moral inventory of ourselves.
5. Admitted to God, to ourselves, and to another human being the exact nature of our wrongs.
6. Were entirely ready to have God remove all these defects of character.
7. Humbly asked Him to remove our shortcomings.
8. Made a list of all persons we had harmed, and became willing to make amends to them all.
9. Made direct amends to such people wherever possible, except when to do so would injure them or others.
10. Continued to take personal inventory and when we were wrong promptly admitted it.
11. Sought through prayer and meditation to improve our conscious contact with God, as we understood Him, praying only for knowledge of His will for us and the power to carry that out.
12. Having had a spiritual awakening as the result of these Steps, we tried to carry this message to alcoholics, and to practice these principles in all our affairs.