CHAPTER 1

Addiction Is Not *Just* a Brain Disease

Critical Studies of Addiction[1]

Craig Reinarman and Robert Granfield

The concept of addiction has crept into the crevices of our culture. We hear it everywhere in everyday speech. People say they are "hooked" on a favorite activity or TV show, that they are "Facebook addicts" or "junk food junkies." Millions of members of 12-step groups interpret their trials and tribulations in terms of addiction to one thing or another. Beyond the flagship of Alcoholics Anonymous, there are now dozens of other such groups including Overeaters Anonymous, Gamblers Anonymous, Shoppers Anonymous, and Clutterers Anonymous. So called "behavioral addictions" include "Internet addiction disorder" suffered by "onlineaholics," which is seen as a serious problem in the U.S., as it is in China, South Korea, and elsewhere.[2] Addiction is commonly invoked by an ever-widening array of professionals including physicians, scientists, lawyers, psychotherapists, police, judges, and social workers. Ordinary citizens regularly invoke addiction to help explain the sometimes inexplicable acts of their neighbors. Celebrities often claim to suffer from one addiction or another and enter rehab when their misdeeds are exposed.

Addiction is conceptually seductive. This book suggests that more and more people find the notion of addiction useful because it serves as an explanation for a great variety of difficulties. Many of the contributors explore why this is so and what it says about modern society. All of the authors understand that the terrain of addiction has expanded dramatically. Addiction now includes not only more and more drugs but more and more behaviors—exercise, sex, shopping, work, and even attachments to other human beings ("co-dependency"). It is tempting to say that we are addicted to addiction; we seem to use it and need it more and more, and it takes the place of other ideas. At the very least addiction has become an all-purpose meta-metaphor for the often troubling relationships we have with what we love, enjoy, desire, or require, and thus find hard to control.[3]

Despite its prominent place in our lexicon, however, addiction is a relatively recent invention. As subsequent chapters will show, the concept of addiction has had its own career marked by some surprising shifts in meaning and focus. Specific actors and institutions with particular interests and ideologies have constructed and reconstructed understandings of addiction. Various interest groups continue to fight over who owns "addiction," how it should be defined, and what should be done about it.

In many Western industrialized societies in the 21st century, addiction is said to be a "disease." Virtually everyone in the U.S. treatment industry embraces this view. They teach the millions of people who enter treatment to understand their problems as stemming from the disease of addiction. Officials of the National Institute on Alcohol Abuse and Alcoholism (NIAAA) have long held that alcoholism is a disease. Their colleagues at the National Institute on Drug Abuse (NIDA) have adopted the claim that "addiction is a brain disease" as a kind of mantra, ritualistically repeating it at every public opportunity.[4] In the U.S., even advocates of decriminalization in the drug policy reform movement invoke the disease concept of addiction when pushing for treatment instead of

prison for drug offenders.[5] The idea that addiction is a disease is now so widely believed, so taken for granted in public discourse about drug-related problems, it is difficult to imagine that it hasn't always been part of the basic stock of human knowledge. But it hasn't.

HISTORICIZING ADDICTION

The concept of addiction-as-disease has a history, a genealogy. It was not a scientific discovery; it did not emerge from the accumulation of research findings. Its current ubiquity is a different species of social accomplishment. It was invented, elaborated, redefined, and reproduced by specific actors and institutions using specific language. As medical historian Charles Rosenberg has noted, a "disease does not exist until we have agreed that it does—by perceiving, framing, and responding to it" as such. Defining something as a disease is part of "a generation-specific repertoire of verbal constructs" that reflect "medicine's intellectual and institutional history." He shows that physicians frequently choose "to label certain behaviors as disease even when a somatic basis remains unclear—and possibly non-existent" (1989: 1–2).

The concept of "disease," Rosenberg argues, is a kind of social actor in that its application can change the narrative and thereby rearrange how we understand the person or behavior. He gives the intriguing example of suicide in early modern England, which was then defined as a crime requiring forfeiture of the property of the deceased to the state. But once medicalized, suicide came to be interpreted as "retrospective evidence of exculpatory disease" (i.e., mental illness), which must have been a great relief to the relatives who stood to inherit the property. A more current example is what is now called chronic fatigue syndrome. People who suffer from the many and often ambiguous symptoms now lumped together under this name had to push organized medicine for years to have their pain officially recognized as a discrete disease. Once physicians defined it as such, those suffering from it became viewed as patients entitled to sympathy and reimbursement rather than suspected as malingerers and denied health insurance coverage. Defining something as a disease gives it a moral legitimacy that can alter how we perceive and react to it. Clinical constructions of addiction contain a set of moral assumptions (May 2001: 386) that are carried over into addiction treatment programs, public policy, and the collective conscience (Gowan & Whetstone 2012).[6]

This anthology begins with some of the little-known or long-forgotten history of how addiction got discovered and defined as a disease. To understand addiction, both as a pattern of behavior and as a way of thinking about that behavior, the concept must be situated in time and space. As Robin Room suggests in Chapter 3, addiction is "a set of ideas which have a history and a cultural location." Peter Breugel's famous painting of 1559, "The Fight between Carnival and Lent," offers a way into this history. It depicts an agrarian village in pre-industrial Flanders in full celebration. Feasting, drinking, and drunkenness are everywhere. This was often the case with numerous peasant holidays throughout the Western world which were traditionally passed in varying degrees of intoxicated revelry. Drinking was a common part of everyday life, engaged in by most people. A few monk-like figures can be seen in Breugel's painting in dark robes stepping solemnly toward the church, but most of the other villagers appear to frolic in drink-crazed abandon.

Breugel captures a moment at the dawn of European modernity (Burke 1978) when a few key groups first attempted to problematize intoxication. Around 1600, ascetic Protestant sects and early capitalists began to oppose the ancient Bacchanalian drinking traditions that had held sway across the Western world from classical antiquity through the Middle Ages (Levine 2006). They called for the renunciation of pleasure for the sake of religious piety and economic productivity. The notion that a substance might "cause" a person to "lose" self-control became broadly thinkable only after this shift took hold in the U.S. in the 19th century.[7]

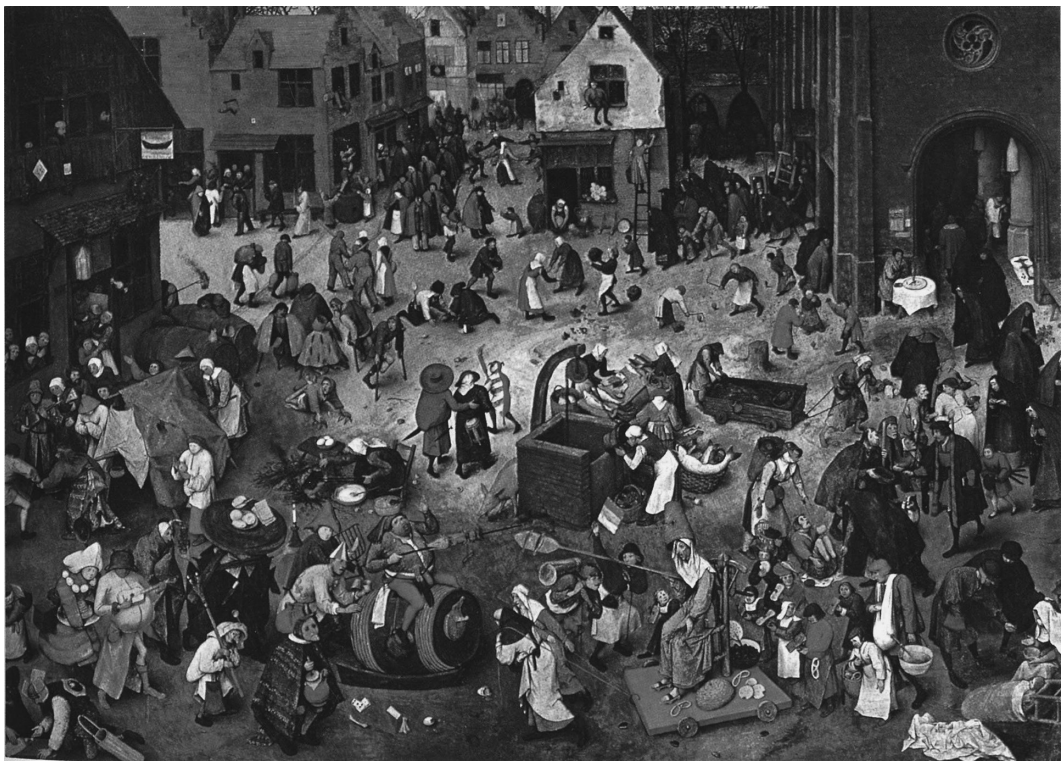

Photo 1.1 "The Fight between Carnival and Lent," 1559.

In tracing this history, the chapters in Part I help explain how addiction-as-disease came to be so widely adopted as an explanation. They illuminate the main historical, cultural, and institutional processes that made addiction-as-disease the dominant framework for understanding drug problems. In Chapter 2, Levine shows that regular or "habitual" drunkenness began to be defined as addiction only at the end of the 18th century, when a new way of understanding the individual self began to emerge in the U.S. For over a century and half from the first Puritan settlement through the American Revolution, drunkards were assumed to have will, to have the capacity to make choices about whether or not to drink. They were not regarded as having a disease that robbed them of their will or their self-control, but rather as people who simply loved to drink and get drunk more than most others.

In the early 19th century, immigration, urbanization, and the development of market capitalism were transforming U.S. society—straining traditional family and community support networks such that one's economic fate increasingly depended upon self-control (see Room, Chapter 3). As Levine notes, it was in this context that the moral enterprise of Dr. Benjamin Rush and the early temperance crusaders gave a specific form to anxieties about self-control by focusing on alcoholic drink, intoxication, and addiction. They proselytized the view that drunkards were stricken with a *disease of the will* (Valverde 1998)—a disease that rendered them powerless over their behavior. In the early decades of the 19th century, the religious revival known as the Second Great Awakening contributed to a growing temperance movement. In temperance ideology, alcoholic drink was

transformed from what even leading Puritan preachers in the 17th and 18th centuries had called "the good creature of God" into a destructive "demon" that they believed to be the direct cause of crime, violence, poverty, insanity, divorce, and most other problems in America.

The notion that an intoxicating substance could cripple self-control and directly cause bad behavior that would not otherwise occur, is a culture-specific attribution. As Room shows in Chapter 3, "not all cultures make this kind of causal connection."[8] The notion that drinking or other drug use can cause people to neglect other important activities makes sense in "the context of a culture attuned to the clock, a cultural frame in which time is viewed as a commodity which is used or spent rather than simply experienced."

As an explanation of habitual drunkenness, addiction-as-disease has taken different forms. In the 17th and 18th centuries, Levine shows, most people believed that the evil that drove drunkenness resided in the moral character of the individual drunkard. In the 19th century, Temperance crusaders popularized the view that the evil was in the bottle—that anyone "whose lips touch liquor" was likely to become a drunkard. Everyone was vulnerable to this disease. That view led ultimately to national alcohol prohibition in 1919. Shortly after Prohibition was repealed in 1933, Alcoholics Anonymous and a growing movement of medical and scientific collaborators developed a new formulation of the relationship between alcohol and addiction. In this view, most people could drink in moderation, but certain individuals were exceptionally susceptible to addictive drinking and thus likely to lose control. This put the evil back in the individual, the alcoholic, who suffered from a person-specific disease.

In Chapter 4, Joseph Schneider describes the modern medicalization of deviant drinking as a "social accomplishment." The idea that deviant drinkers had a disease and should receive treatment, he shows, was the product of Alcoholics Anonymous, the Yale Center for Alcohol Studies, and E. M. Jellinek's formulation of alcoholism as a disease. The scientific research said to support the idea that alcoholism is a disease, as well as its endorsement by the American Medical Association, generally *followed* the alcoholism movement's assertion of this view (Room 1983). As John Seeley long ago noted, "The statement that 'alcoholism is a disease' is most misleading, since it conceals that a step in public policy is being recommended, not a scientific discovery announced" (1962a: 587). Seeley supported the notion that drinkers who needed help should have it, but he balked when this sort of compassion made its case by masquerading as science.

DEFINING ADDICTION: A CHRONICLE OF CONCEPTUAL ACROBATICS

In another essay, Seeley asks whether alcoholism is "a moral failure, a deviation, self-comforting behavior, an addiction, a disease, a disorder, a crime or misdemeanor, a cultural pattern, or a defect of socialization . . .?" His answer is "perhaps every one of these" (1967: 157), but his point is that what we call it and how we define it affect how alcoholics understand themselves, how others see them, and thus what alcoholism actually is.

Applying the disease concept of addiction beyond alcoholism to the use of other drugs led to a regular reworking of the definition—and *not* in the direction of greater precision as is typically the case with other diseases. In the early 20th century, addiction to morphine, heroin, and other opiates came to be defined as physiological dependence as indicated by tolerance and withdrawal symptoms. But this once widely accepted definition eventually proved too restrictive. For one thing, tolerance and withdrawal are not universal even among regular heroin users; some do not develop tolerance and some remain controlled users, as do most users of cocaine.[9]

In 1950, an expert committee of the World Health Organization (WHO) defined drug addiction as chronic or periodic intoxication, a compulsion to continue, a tendency to increase dose, psychic and physical dependence, and detrimental effects on the user and society. But faced

with the recalcitrant fact that some forms of illicit drug use do not entail these characteristics, the WHO proposed the concept of "drug habituation" in 1957. They defined drug habituation in much the same way as drug addiction but without compulsion, increasing doses, or societal consequences.

By the 1960s, the WHO's search for an expanded definition of addiction-as-disease that would encompass the broadening array of illicit drug use led them to drop both these concepts in favor of the looser notion of "drug dependence." They defined this simply as psychic and/or physical dependence on a drug, the characteristics of which varied by drug type (Christie and Bruun, 1968: 66–7). By 1981, the WHO definition of "dependence" was redefined still more loosely as a syndrome in which drug taking is "given a much higher priority than other behaviors that once had a higher value" (Shaffer and Jones, 1989: 42). Most everyone would agree that this is true of addictive behaviors, but this conception is so broad that it fits virtually any behavior that is substituted for any prior behavior—even behaviors that entail no use of psychoactive substances.

Like their counterparts at the WHO, other experts continued to hunt for a definition of addiction malleable enough to encompass both the growing range of illicit drug use and stubborn empirical anomalies. For example, in 1972, the American Psychiatric Association (APA) shifted away from the term "addiction" toward a broader concept of "drug abuse," which it defined as the nonmedical use of drugs that alter consciousness in ways that "are considered by social norms and defined by statute [as] inappropriate, undesirable, harmful . . . or culture-alien".[10] But most of these terms are normative, not scientific, and the definition itself is rests on a troubling circularity: When lawmakers write drug laws they justify them in terms of medical expertise on drug abuse, but here the medical scientists defined drug abuse in terms of law.

The latest edition of the APA's *Diagnostic and Statistical Manual* (DSM-5) drops the term addiction altogether in favor of "substance use disorder."[11] To be diagnosed as having it, a drug user can meet any two or three of eleven criteria within the past year, ranging from classical tolerance and withdrawal to vague and context-dependent behavioral indicators such as using more of a drug than intended. One key DSM criterion for substance use disorder is persistent use despite harmful consequences. This seems sensible enough until we consider that such "harmful consequences" are not always attributable to drug use alone. Many of the harms taken as indicators of drug abuse and addiction depend upon the relative social instability and marginalization of the user, and these are often shaped as much by drug law as by drug use. Moreover, the latest DSM-5 diagnostic criteria are likely to create even more ambiguity about the meaning of addiction. The "disorder" can range from mild to severe and its configuration varies from drug to drug. As Stanton Peele has noted, some "behavioral addictions" like gambling are included, but not Internet fixation, while college students who have five drinks at one sitting more than a few times—a pattern most leave behind soon after graduation—are now defined as alcoholics under the newly slackened diagnostic criteria.[12]

The repeated redrawing of the definitional boundaries of addiction-as-disease helps account for its elasticity and how it has come to be applied to such an extraordinary range of behaviors. Our point here is not to disparage the hard work of scientists who have long tried to identify the essential features of addiction, nor to imply that their criteria are entirely arbitrary. Behavioral problems and mental disorders are intrinsically more difficult to define than most physical disorders. The point is to call attention to the fact that the fundamental concepts and categories that many assume to be clear, objective, and universal indicators of addiction are in fact fuzzy, fluid social constructions that reflect the beliefs of a particular group of experts at a particular time and place. This matters, for as Darin Weinberg suggests in Chapter 8, it is the everyday deployment of such concepts and categories that discursively *produces*—helps make visible and legible—the phenomenon they claim to describe, "the disease of addiction."

A "CHRONIC RELAPSING BRAIN DISEASE"

Attending to the genealogy of addiction-as-disease is more important than ever because those who work within the latest dominant paradigm in addiction research believe they have finally discovered the Holy Grail: the location and operation of addiction-as-disease in the human brain. Although EEG technology was deployed during the 1930s and 1940s in an unsuccessful attempt to locate addiction in the brain, the current paradigm rests on new neuroscience technologies pioneered in the 1990s (e.g., Belliveau et al. 1991). These technologies allow the imaging or "mapping" of neural activity in real time through functional magnetic resonance imaging (fMRI). This imaging provides digitized representations of traces of hemodynamics or cerebral blood volume, which indicates brain activity. It is worth noting that this technology directs our focus to what it can illuminate and away from what it cannot illuminate. This shift in focus inevitably entails detaching brains from bodies and from the social contexts in which bodies and brains develop.[13] But there is no doubt that fMRIs have opened up a new world of experiments that have yielded novel insights on how the brain's so-called pleasure center and reward circuitry react and how they develop longer-term adaptations to psychoactive substances.[14] In this paradigm, addiction is defined as a "chronic relapsing brain disease" or CRBD.

The general trend in this neuroscience research has been toward the "common pathway" hypothesis (e.g., Nestler and Malenka 2004). That is, the brain imaging techniques show that the brain responds to psychoactive drugs in very similar ways to how the brain responds to other pleasurable activities. And therein lies a key limitation. While this research documents a fundamental neurobiological piece of addiction, it cannot easily distinguish one pleasurable activity from another. The result has been an embarrassment of riches. As Harold Kalant demonstrates in Chapter 6, changes in brain function along this common pathway occur with the use of a wide variety of very different drugs, licit and illicit, but also with many adrenaline-inducing and other pleasurable or satisfying activities involving no drugs at all. These activities include gambling, acts of cooperation and generosity, maternal support, talk therapy, and even looking at beautiful faces.[15] Indeed, Dr. Roy Wise, a NIDA scientist who studies addiction, notes that people will find pleasurable and thus tend to repeat "anything you can do that turns on these dopamine neurons" (Kolata 2002).

Whether this repetition becomes a problem for an individual or the larger society, however, is a separate matter that depends upon many factors other than brain circuitry or physical dependence. Functional magnetic resonance imaging has also documented that brain functions are affected by the cumulative toll of trauma and other forms of psychic pain, which so many other genres of research have found to be a recurring theme in the life histories of drug addicts. Early-life stress and many other problems associated with poverty, for example, correlate with a shrunken hippocampus and amygdala, the regions of the brain that are important for memory and emotional well-being, respectively. Clearly the brain is centrally involved in drug use behaviors. But as Dr. Kalant suggests, this does not necessarily mean there is a site of pathology in the brain that distinguishes repetitive drug taking from, say, sex, sailing, symphonic music, and other activities people find pleasurable and therefore tend to repeat. It is true that addictive behaviors *tend* to be chronic, that addicts who try to quit *often* relapse, and that the brain's circuitry is important in these processes. But several of the contributors to this book suggest that what is called addiction is more contingent on contextual factors—and therefore more indeterminate and potentially alterable—than we might imagine from looking at the brain in isolation.[16]

MISSING CONTEXTUAL VARIABLES

The brain is obviously important for understanding addiction, but when brain-based theories exclude or neglect the contextual factors that influence what gets into the brain, they risk biological reductionism. The fact that there is neuronal or brain activity associated with human

thoughts, feelings, and behaviors does not mean that these things are reducible to or the same as that neuronal activity (McGinn 2013). Biology cannot eclipse culture because it always operates within and in interaction with culture. The brain is an infinitely complex set of systems that serve as a reflexive repository of lived experiences. Brains are embedded in bodies, and bodies in turn in families, and families are nested in communities and in particular niches in the wider social structure. All of these things shape the conditions under which drug users live, and thus impinge upon their psyches, their situations, and their practices. If we reduce the aperture of attribution through which we view addiction so that only individual brain activity comes into view, we sever the brain from the webs of meaning in which it is enmeshed and through which its inputs flow.[17]

At the broadest level, biological models of addiction extract addictive behaviors from the historical and cultural contexts that shape them. Virtually all explanations of addiction-as-disease stress the individual's loss of self-control. Explanations of such behaviors should, then, take into account the conditions under which self-control came to be so important and yet so difficult to maintain. For example, a core aspect of modern society is the proliferation of pleasures and the idea that ordinary citizens have a right to pleasure. Modern market economies have constructed mass consumption cultures in which immediate gratification—in effect throwing self-control to the wind—is actively encouraged by a vast machinery of marketing that reaches all the way into our cell phones to persuade us that shopping itself is a core leisure activity.

At the same time, however, as Alexander shows in Chapter 8, the market dynamism of modern societies creates various forms of social and cultural *dislocation*—from families of origin, from communities, from traditions and ways of life that orient and constrain individuals (see Chapter 20). Such cultural dislocation loosens the bonds that anchor the self in a coherent community and thereby tends to make obsessive behaviors both more likely and more destructive. Market societies expect individuals to "take responsibility" for their own actions by means of self-control, yet those societies are organized in part precisely to undermine that self-control. Under such circumstances, the regulation of the self and its desires has grown increasingly difficult for more and more people. Indeed, if asked to design a society so as to maximize addictive behaviors, you could hardly do better than the contradictory culture we have.

Theories of addiction-as-disease also tend to ignore the long-term process of social learning through which cultures teach their members how they might tame or domesticate the use of intoxicants to reduce risk (Reinarman 2013). Norbert Elias's classic study, *The Civilizing Process* (1994), showed how the fierce warrior behaviors that were seen by people in the Middle Ages as fixed in "human nature" were in fact mutable over time. As the structure of society changed, the more genteel norms of courtier culture spread across society as a whole and were eventually internalized by increasing numbers of people (see also Pinker 2011). When the scientific and medical focus is on the individual addict's brain, often too little attention is paid to the long-term development of drug user knowledge and culture (Becker 1967). These user cultures can help individuals learn to moderate their doses, use protective practices, and develop informal rules that help them to regulate appetites so their drug use doesn't interfere with social functioning or reach a state of addiction. Of course, user cultures do not prevent drug abuse and addiction in all cases, but they do reduce the *likelihood* of abuse and addiction across the population. The fact that the majority of people who use drugs do *not* move on to chronic abuse suggests that much more is producing addiction than drug molecules landing in receptor sites in the brain.

Addiction-as-brain-disease proponents often claim that chronic drug use decreases brain metabolism and causes "brain deficits" in the prefrontal cortex, which then help keep addicts addicted. A recent editorial in *Nature*, for example, made this kind of argument:

> Drug addiction is a disease. Images of the brains of addicts show alterations in regions crucial to learning and memory, judgment and decision-making, and behavioral control. Drugs imitate natural neurotransmitters, resulting in false or abnormal messages being sent around neural circuits. The brain's central reward

> system is overstimulated and flooded with dopamine. The brain adapts to this flood by turning down its ability to respond to dopamine—so addicts take more and more of the drug to push dopamine levels higher. (*Nature* 2014)

But if it is chronic drug use that causes such maladaptation in the brain, then that maladaptation cannot also be the initial cause of the chronic drug use. Certainly genetic and biological variation make some individuals more susceptible to repeated drug use and thus more vulnerable to addiction (e.g., because they have fewer dopamine receptors). But a wide range of other factors usually have to fall into place and remain in place before drug use becomes sufficiently chronic to alter routine brain functioning in the first place. Take as an example the career of a stereotypical "street addict." Before he could become addicted to, say, heroin or crack cocaine, those drugs had to be *available*—geographically and culturally—in the neighborhoods and the social circles in which he moved. He had to learn from others that such drug use was acceptable and desirable, how to ingest the drugs so as to produce effects, and how to interpret and appreciate those effects (Becker 1953). The use of the drug had to be within his comfort zone and behavioral repertoire. Not just anyone in any peer group is likely to regularly smoke crack cocaine or inject heroin into their vein.

For a drug user to then repeat such drug use often enough to damage his brain or become physically dependent he would have to find the effects sufficiently appealing and functional to *continue* using regularly. Most people who try these drugs don't continue for long. For one thing, most people have a stake in conventional life that constrains their use (e.g., Waldorf et al. 1991). Surgery patients routinely ingest enough opioid painkillers to become physiologically dependent, yet they rarely become addicts. Continued use is far more likely when the person is using a drug to numb physical pain from chronic conditions or psychic pain from trauma, abuse, humiliation, violence, poverty, depression, or despair. In their classic study of Vietnam veterans who used heroin in Vietnam, Lee Robbins and her colleagues (1974) found, to everyone's surprise, that the vast majority did not continue to use heroin once they were removed from the horrors of the war zone. As Richard Hammersley suggests in Chapter 20, drug use is most likely to become chronic when the person lacks compelling constraints or counterweights—for example, meaningful work, respected roles, possibilities for a better life—that help keep most people away from problematic drug use.

Neither the conditions that increase the likelihood of addiction nor the constraints that decrease the likelihood of addiction are evenly or randomly distributed across the population. The characteristics of culture and social structure interact with the genetic and neurological characteristics of individuals to yield a range of strengths, vulnerabilities, and possible outcomes. Among developed countries, for example, mental disorders of all sorts are far more common in those societies with greater economic inequality. Nations with the biggest income differences showed the highest incidence of anxiety disorders,[18] many of which are associated with addiction. Specific regions of the brain and neural mechanisms process information about social rank.[19] Low status and subordination appear to be linked to anxiety, depression, and other disorders that are highly correlated with chronic drug use.

Understanding addiction purely or even mainly in terms of its biological factors—genetic, physiological, or neurological—tends to push social factors off stage and into the shadows. The chapters in this anthology generally share the view that one cannot understand the use and abuse of drugs apart from the *social* meanings that users attach to drug use. Alfred Lindesmith's classic study of opiate addiction (1947) showed the crucial cognitive and cultural components of becoming an addict. Withdrawal pangs alone were not enough. He found that the opiate user had to use frequently enough to become physiologically dependent. But then they had to *learn*, usually from other addicts, to recognize that they were experiencing withdrawal and that another dose would alleviate those withdrawal symptoms. Finally they had to *decide* to take that other dose, and to do

so repeatedly, until they came to understand themselves as addicts and to accept the addict identity. These are social processes that are not reducible to drug molecules "hijacking" the brain; they require interaction with and learning from other addicts in particular cultural contexts. Preble and Casey (1969) made a similar point in their influential research on the heroin addict's life in the streets. Their study upended the long-held view of opiate addicts as passive, withdrawn, and "on the nod" by virtue of their addiction. By close ethnographic observation Preble and Casey showed instead that so-called street addicts had to engage in a challenging round of activities every day in order to avoid being dope sick, and that, however illegal and destructive, their cycles of stealing, scoring, and shooting often provided meaningful and even rewarding lives compared to the limited array of legal options available to them.

Why is crack use confined largely to the most marginalized and impoverished populations? A key part of the answer is that crack's extremely intense but fleeting high tends to lead to bingeing, which can be destructive. The crack rush does not have as much appeal for people who have everyday lives in which they are invested.[20] Conversely, why does regular coca leaf chewing among Andean peasants so seldom escalate to extreme modes of ingesting cocaine such as smoking crack? A large part of the explanation is that coca chewing is an ancient ritual practice that is well integrated into peasant culture rather than a means of escaping or coping with the consequences of dislocation or marginalization from that culture. In short, just as drug addiction is typically contingent upon a pattern of chronic use, that chronic drug use is itself contingent upon the presence of numerous *sociological precursors*. These precursors do not show up on an fMRI, but they, too, are essential pieces of the puzzle of addiction.

By truncating these contextual precursors, addiction-as-disease discourse has helped to conceal a wide array of evidence about controlled drug use and natural recovery (see Granfield and Cloud, Chapter 14). People who use drugs do indeed alter their consciousness, but neither neuroscientific nor genetic approaches can explain why most people who use drugs with high "addictive liability" do not in fact become addicted, or why even many who do become addicted find ways of reducing their use or stopping on their own without imprisonment or treatment. This is one of the heretical little secrets of the drug war, a kind of subjugated knowledge that is kept outside the disease paradigm. We hope this anthology will help drag this subjugated knowledge out into the light of day and make it part of a larger and more informed conversation about addiction.

Proponents of the disease approach claim that by demonstrating how addiction operates in the brain—placing it beyond the realm of free will and conscious choice—they have finally freed us from the old moralistic conceptions and shifted the framing of addiction from badness to sickness (Conrad and Schneider 1992). The medicalization of addiction has, this argument goes, placed addiction where it belongs, in the realm of public health rather than criminal law, and improved access to and the effectiveness of addiction treatment. We agree that addiction is far better understood as a health issue than a criminal one, but as historian David Courtwright suggests in Chapter 5, such claims of "beneficent medicalization" are mostly wishful thinking; what we have seen so far is at best "contested medicalization." The recent advances in neuroscience have not made much of a dent in the earlier vilifying views of addicts. Treatment is not always successful and usually takes more than one attempt, but in any event it remains unavailable to many who seek it while hundreds of thousands of drug users continue to be arrested and incarcerated each year. Most Americans and most policy makers seem quite comfortable seeing addicts as sick and bad at the same time. Medicalization has not yet posed a serious threat to punitive prohibition, which remains the core of U.S. drug policy despite long-standing evidence of its ineffectiveness, enormous costs, and destructive consequences.

Brain disease advocates have not changed how addicts are viewed nor the policies that shape addicts' options -- even though they have demonstrated that the brain works in much the same way with so called behavioral addictions like gambling and compulsive Internet use that don't involve drugs. Like the earlier iterations of addiction-as-disease, the brain disease model has functioned

as more of an adjunct to the war on drugs than an alternative. Indeed, policy makers routinely invoke the horrors of addiction-as-disease in order to justify punishing illicit drug users. However, such prohibitionist policies tend to push many popular forms of drug use into deviant subcultures where the moderating influences of the broader society have little or no sway and where extreme or problematic use becomes *more* likely. Arrest and imprisonment reduce the life chances of those incarcerated such that the likelihood of their future drug abuse often increases. Moreover, defining addiction as an individual pathology helps institutionalize regimes of self-governance that emphasize individual solutions to problems that are, in important respects, inherently social. While the implications of the CRBD model are still unfolding, it is important to consider the new forms of governance—power, authority, knowledge, expertise, and therapeutic practices—that are justified by invoking "the addicted brain."

THE PATHOLOGIZING GAZE

Reductionist understandings of human troubles are also troubling because they have a tendency to pathologize feelings that were once understood as part of the ordinary variation in human behavior. Nicolas Rose has called this "the recoding of everyday affects and conducts in terms of their neurochemistry" (2003: 46, 2013). Children who were once described as "fidgety" or as having "ants their pants" have been redefined as patients suffering from Attention Deficit Hyperactivity Disorder (ADHD) and prescribed amphetamine-like stimulants such as Ritalin and Adderall.[21] People who are said to lack self-esteem are now often diagnosed as having mild depression and prescribed Prozac or similar drugs that make them feel better by increasing the amount of serotonin in their systems. In many cases this amounts to what Kramer (1993) calls "cosmetic psychopharmacology." People who feel acutely shy are increasingly seen as suffering from "social anxiety disorder" or SAD, which is then "treated" with Valium (to which many people have become addicted). Others who feel especially anxious are increasingly diagnosed as having panic attacks, which are managed with Xanax, a benzodiazapine that is chemical cousin to Valium. Having trouble sleeping becomes insomnia and warrants prescriptions for Ambien, Lunestra, etc. Older men said to suffer from "erectile dysfunction" have long been prescribed Viagra and similar drugs. Now an even wider range of men are being told in pharmaceutical ads that they might suffer from the new "disease" of "low T" (testosterone). Prescriptions for testosterone have tripled since 2001, now surpassing 3 million, despite a heightened risk for heart attacks.[22] Drug companies are using the same pathologizing pitch on older women whose libidos may lag for any number of quite normal reasons (see Chapter 16). The ads claim such women suffer from a female version of this "disease," which the pharmaceutical companies have labeled "hypoactive sexual desire disorder". The solution? A prescription for Lybrido. Whether it is hyperactivity, sadness, shyness, insomnia, or gradual declines in sexual desire in old age, the pharmaceutical industry defines those who report any such "symptoms" and are *not* taking psychoactive medications as "under-treated." Down this road lies diagnostic promiscuity (Peele 1989; Rose 2003).

The risks of over-drugging aside, this pathologizing lens tends to limit the scientific focus to characteristics of the individual patient. As with addiction-as-disease, the contributions of cultural and social structural factors to such human troubles tend, ironically, to be chemically camouflaged by prescription medications. To understand ADHD, for example, as a pathological condition of individual "patients" is to rip its etiology out of history. The percentage of young people who were diagnosed with and prescribed stimulants for ADHD tripled in the 1990s and almost doubled again between 2008 and 2012. Such increases are "far beyond reasonable rates" (Schwarz 2014). Nearly one in five boys and one in ten girls in the U.S. have been diagnosed with ADHD—more than 6 million children, over two-thirds of whom have been prescribed stimulants.[23] Nor is this ostensible epidemic limited to antsy adolescents. Amphetamine-type stimulants are now prescribed for more than 10,000 children as young as 2 or 3 (Schwarz 2014) and their use for ADHD

among adults is also "soaring" (Harris 2005). There is evidence that severe ADHD is a biological condition, but *why* ADHD appears to be spreading so rapidly, and why over 90% of the stimulant prescriptions for it are written in the U.S., are rarely discussed.[24] Prescribing amphetamine-type stimulants may help control unwanted behaviors but it leaves many of the underlying sources of such behaviors unexamined. The explosive escalation of stimuli in modern life isn't considered, nor is the relentless ratcheting up of the minimum threshold at which we feel entertained in our "rapid fire culture" (DeGrandpre 2000).

Seeing ADHD as an individual pathology is, however, appealing and functional for families. Something can be done. A simple pill can improve school performance and thereby help children maintain or even raise their social position in an increasingly competitive world. No need to consider the impact of stressed-out households where both parents need to work because middle-class salaries have been stagnant for decades. No need to take into account the effects of reduced school funding, bigger classes, fewer teachers, cuts in after-school programs, or the shortage of meaningful jobs for young people, all of which make whatever behavioral symptoms may exist appear more problematic. No need to think about the multiplication of media and digital devices that constantly beckon for attention. Pharmaceutical companies are only too happy to try to persuade physicians and parents that a long-term prescription will manage the symptoms and ensure children's success. For genuinely serious cases of ADHD, such pills have great therapeutic value. But they have been widely over-prescribed to many who do not fit even the loosened diagnostic criteria for the disorder.

It is certainly true that the neuroscientific reformulation of human beings and the attendant proliferation of new medical and pharmaceutical technologies have the potential to reduce human suffering, including addiction, in individuals. But as we have argued above, human brains do not develop or exist in individualized isolation. As Rose and Abi-Rached write, "[B]rains are constitutively embodied in living creatures, dwelling in space and in time, interacting in small and large groups on which they depend for their existence, striving to survive inhabiting and remaking their milieu across the course of their lives." Any neuroscientific account of the brain "that does not recognize that human capacities and competencies emerge out of, and are possible only within this wider milieu made and remade by living creatures, shaped by history, marked by culture in ways ranging from design of space and material objects to the management of action and interaction and organization of time itself, will be scientifically flawed" (2013: 233).

WHY THIS MATTERS

The chapters in Section 4 illustrate how the concept of addiction has been expanded to encompass ever more behaviors beyond drug use—unhealthy dependence on other people (Chapter 15), sex addiction (Chapter 16), and compulsive gambling (Chapter 17), Internet use (Chapter 18), and eating (Chapter 19). As addiction comes to loom ever larger in culture and public policy, how we define and understand it, the meanings we attach to it, become increasingly important because these shape how we perceive the behaviors said to constitute it and how we, as citizens and as a society, respond to them.

We have argued that to conceive of addiction as an attribute of the individual addict—whether situated in physiology, psychology, genes, brains, or all of the above—is to neglect the contextual causes of addiction. This matters because without these contextual contributions our basic understanding of the etiology of addictive behaviors will remain partial at best. We have noted the constellation of conditions having to do with poverty and trauma that so often factor into both the onset and the maintenance of drug addiction. But there are other such social ingredients, often less obvious, that have little to do with poverty or trauma. For example, iatrogenic addiction—addiction that originates in the course of medical treatment—has always been more prevalent than is commonly believed. Most opiate addiction in the late 19th and early 20th centuries began

when doctors prescribed morphine and other opiates for a broad array of conditions (Duster 1970; Musto 1987. In recent years methamphetamine has taken its place next to heroin and crack cocaine atop the pantheon of "most addictive substances." But in the 1950s amphetamines were widely promoted by pharmaceutical companies and prescribed by physicians as a pick-me-up and dietary aid. In the 1960s, Valium and other benzodiazepines were promoted as a less dangerous alternative to barbiturates, but they were prescribed for so many different symptoms to so many patients that millions became addicted.[25] Beginning in the 1990s, OxyContin, a synthetic opiate, has been increasingly prescribed for pain. By 2010 it had become the fastest growing form of drug addiction and often led to illicit heroin use. Neuroscience shows us what happens in the brain when such drugs are used chronically, but no theoretical model of drug addiction will be scientifically adequate if it ignores the conditions that increase the likelihood of the initial chronic use across the population, including the role of medical practice and the aggressive marketing strategies of pharmaceutical companies that influence physician prescribing.

The same point holds for the so-called behavioral addictions. Every aspect of gambling systems from the basic architecture of casinos down to the inner logic of games, slot machines, and even state-sponsored lotteries are designed to induce addictive patterns of behavior (Schull 2012). This is also true of many online games that are often key to what is called Internet addiction. With regard to eating disorders, whatever genetic vulnerabilities individuals may have and whatever social-psychological factors trigger compulsive eating patterns, Michael Moss shows in Chapter 19 that addictiveness has been literally engineered into many food products. Corporate scientists continuously experiment to achieve just the right mix of sugar, salt, spice, fat, and starch to engender repetitive eating and maximum sales.[26] The public health consequences—on rates of obesity, diabetes, heart disease, and other conditions—rival those of the riskiest drugs. We ignore the many social conditions that contribute to addictive behaviors at our peril.

Similarly, when addiction is narrowly conceptualized as a disease that resides in individuals, the range of possible responses shrinks. People who struggle with overeating, for example, often benefit from support groups and exercise programs, but they might also benefit from intelligent regulation of the supply side of the equation, for example, policies that require posted calorie counts for sugary soft drinks and fast food. Individual OxyContin addicts may well benefit from treatment, but tighter regulation of pharmaceutical industry marketing and better education of prescribing physicians are also likely to reduce the overall prevalence of the problem. As we noted above, in most cases several sociological precursors have to fall into place before there is sufficient drug use to cause the maladaptation in the brain that is said to perpetuate chronic drug use. If addiction treatment sees the problem as residing in the genes or the brains of individual addicts, then the contextual factors that so often help make addiction possible in the first place are likely to remain unaddressed. Lack of education, skills, and job opportunities, for example, usually increase the likelihood of chronic drug use and are nearly always impediments to lasting recovery. Treatment professionals well know that addicts too often leave treatment to return to lives in which little else has changed and that this increases the likelihood of relapse. Addiction treatment programs that neglect such broader conditions facing those who struggle with addiction will remain incomplete. Without integrating a range of social services into treatment regimes to speak to addiction-generating needs beyond the brain, treatment success rates will remain lower, and relapse rates higher, than they might be.

The chapters in Part III call attention to the politics of addiction treatment. Treatment is understood as a response to a disease, but insofar as it deploys expertise to alter behavior and relies on some degree of coercion, it is also an act of power and a mode of governance. Addiction treatment has changed dramatically over the years, and often for reasons having little or nothing to do with science or evidence of effectiveness. As Weisner and Room point out in Chapter 10, the very definition of addiction, the clientele to be served, as well as the nature of treatment protocols are fundamentally related to the funding structure of treatment. The growth of the privatized

treatment industry had less to do with the emerging science of addiction than with the emerging opportunities for profit in an expanding healthcare marketplace—particularly the discovery of addiction among the middle class, whose treatment costs were covered by third-party insurers.

It is often said that addiction is an "equal-opportunity disease," and it is certainly true that addicts can be found in all social groups. But when we look at the *consequences* of addiction, social class matters. As Fox points out in Chapter 11, social class differences are evident in the differential treatment of alcohol addicts and heroin addicts. Alcoholics Anonymous taps into middle-class values of self-control and redemption, while methadone maintenance constructs the images of heroin addicts as indolent and lacking in self-discipline. Bourgois's ethnographic analysis in Chapter 12 suggests similarly that methadone clinics tend to see heroin addicts less as human beings afflicted with a disease and needing medical care than as unruly deviants in need of discipline and control. Indeed the disciplining nature of treatment is especially evident in drug courts. As Rebecca Tiger shows us in Chapter 13, these courts typically highlight a disease ideology of addiction while simultaneously ignoring the racial and class biases that are built into the criminal justice system. For all their good intentions, drug courts, like criminal courts from which they claim to be a therapeutic departure, too often end up subjugating a disproportionate number of poor people and people of color. Those who live in communities where drug misuse and addiction are more likely are also are more likely to lack the skills, resources, and other forms of social capital needed for overcoming addiction. As Granfield and Cloud suggest in Chapter 14, "natural recovery" is the most common pathway out of addiction, and here social capital matters as much as whether addicts are responded to as having a brain disease.

The understanding of addiction that undergirds drug control policy is one of crime, disease, and death—the things people fear most about drug addiction. Ironically, however, the media, politicians, and citizens typically speak of these problems as if they are "caused" directly by drug use, but the consequences that seem to flow from drug use are shaped in crucial ways by punitive drug *policies*. Research has long shown that much "drug-related" property crime by opiate addicts originates in the dehumanizing funnel of narrowing options and deepening desperation that result more from the context of criminalization than from addiction per se. Cycles of arrest and incarceration of addicts set in motion what Cohen (1991) has called "junkification," a process in which the choices available to those dependent on illicit drugs shrink. Jobs are lost, family lives disrupted, hygiene and health deteriorate, and the capacity for self-management and care atrophy to the point of general immiseration (see Rosenbaum 1981). Similarly, most of what were called "crack-related homicides" turned out to result less from the effects of the drug, as harsh as these could often be, than from the context of illicit crack markets in impoverished inner cities (Goldstein et al. 1997). Widespread unemployment, intense competition for potentially high profits, easy availability of guns, and no recourse to legal means of commercial dispute resolution add up to a virtual recipe for violence.

Most overdose deaths are a function of the absence of potency labeling and quality controls in illicit drug markets, and to some extent policies that have not allowed the distribution of opioid antagonists like naloxone, which can reverse overdoses and save lives. The spread of HIV/AIDS and hepatitis C among injection drug users stems from the criminalization of injection equipment, which makes it artificially scarce and thereby encourages unsafe injection practices such as syringe sharing. This sort of policy reflexivity is particularly acute in the broader context of extreme poverty, inequality, and socio-cultural dislocation from which so much problematic drug use arises. In short, over time our drug control policies are in some measure self-ontologizing, that is, they help bring into being the very outcomes that are then invoked to justify those policies. Any full understanding of addiction requires understanding how drug control laws and policies feed back, often in unanticipated ways, upon the behaviors they set out to control by influencing the social settings in which drug use occurs, the psychological sets of the drug users in those settings (Zinberg 1984), and thus decision-making calculus that informs their drug-taking behaviors. We

have drawn most of our examples of policy reflexivity from drug addiction, but parallel points can be made about the links between food addiction and the proliferation of fast food, links designed to lead to endless other links on the Internet, and the mass promotion of gambling as a strategy of public finance.

Reductionist conceptualizations of addiction build blinders and biases into research in ways that can be self-fulfilling. Seen in whole and in its full complexity, the sprawling list of behaviors now lumped under what is called addiction looks more like a messy mosaic than a neat gene sequence or a brain scan. But truncating contextual variables and ignoring the ways in which drug policies feed back upon chronic drug use, certain forms of knowledge end up in a privileged position with regard to research funding and publication. Funding decisions determine what sorts of studies get conducted, studies which in turn shape the scientific literature.[27] Subsequent rounds of research funding decisions are then made on the basis of how well investigators situate their research questions in this existing literature and address the "normal science" puzzles within a dominant paradigm (Kuhn 1962). Over time, some issues get included and result in valuable research, but other, potentially valuable issues get excluded or marginalized. The result is often a winnowing of scientific knowledge that can cascade into a deeper misunderstanding of the phenomena. We need to attend to the ways in which this skews the scientific knowledge base in certain directions as that knowledge informs treatment, policy, and the media. One genre of science is getting in the way of science in general. The contributors to this volume generally share the view that what are called addictive behaviors need to be put back into history, back into their myriad social contexts, back into cultural motion. If addiction researchers can do this, we will gain a much richer understanding of the nature of addictions and with it more hopeful possibilities for prevention, harm reduction, controlled drug use, treatment, and recovery.

BUT WHAT ABOUT THE LIVED EXPERIENCE OF ADDICTION?

Attending to the social and political processes that produce knowledge about addiction and showing that addiction-as-disease is an historically and culturally specific social construction should not be taken to mean that the lived experience of what is called addiction is therefore somehow less "real," less powerful, or less deserving of attention. People decide to ingest drugs in part because drugs are consciousness-altering chemicals that make people feel different in ways they find pleasurable or valuable. But again, the material substratum where molecules meet receptor sites cannot by itself adequately explain patterns of drug using behaviors. Regular ingestion does not always or inevitably lead to the sorts of chronic or problematic use patterns that are called addiction; even physiological dependence does not always lead to the desperate "junkie" behaviors that are so often taken as the defining feature of the disease. As we noted above, these are common yet still sociologically contingent outcomes.

What are taken to be the physiological and neurological effects of a drug do not present themselves to users in some raw, pre-categorical form, without the linguistic encasements provided prior to ingestion by culture.[28] While neuro-imaging research has documented some of the preconscious neural processes involved in the craving reported by addicts (see Campbell 2010), the conscious subjective effects they describe are *produced* in important part by their own active interpretations of the often ambiguous physiological cues that follow the ingestion of a drug. These interpretations are assembled from the conceptual categories available to them in culture. The particular features of and the meanings attributed to drug experiences, as well as the behavior thought to follow from them, are culturally specific. MacAndrew and Edgerton's (1969) pioneering cross-cultural research on drunken comportment, for example, demonstrated that people come to understand their experience of altered states—and *learn* how to behave in those states—from their culture. As Peele has argued, the cultural belief that "alcohol has the power to addict a person goes hand in hand with more alcoholism. . . . What people believe about their drinking

actually effects how they react to alcohol" (1989: 170, original emphasis). Conversely, cultures in which people do *not* believe drugs can cause the "loss of control" exhibit far less uncontrolled drinking. However, just because "loss of control" is a cultural construct does not imply that users' *feelings* of "loss of control" are any less acute or troubling or worthy of assistance (see Weinberg, Chapter 9).

Most of those who get defined as addicts and come to adopt the addict or ex-addict identity have learned to interpret their experience in terms of the reigning addiction-as-disease paradigm. It is fair to say that the disease model resonates with many different kinds of people who have come to see themselves as addicts; disease discourse fits their experience reasonably well. The core notion of "loss of control" helps them understand their seemingly inexplicable decisions to persist in problematic behaviors in the face of harmful consequences. But part of this resonance has to do with the *functionality* of the disease model. Gamblers, over-eaters, alcoholics, heroin addicts, and others all find addiction-as-disease to be a useful way to put distance between their old addicted selves who behaved badly and their new recovering selves who have changed their ways. That said, cognitive fit and resonance are matters of culture, too, not an external validation of the concept of addiction-as-disease. Which came first, the lived experience of addiction or the culturally available frameworks for making sense of it, is difficult to disentangle. Human beings are born and reared inside their culture, and there is no simple way to separate their lived experience from the discursive practices operating in that culture which name and give specific shape and valence to that experience.

The selections in this anthology call attention to the historical, political, economic, and cultural aspects of what is called addiction and to the procedures by which knowledge about addiction and its treatment are socially produced. None of these chapters, however, should be taken to imply that the lived experience of suffering among those who struggle with the manifold forms of addiction is any less real.

SOME ELEMENTARY PRINCIPLES OF CRITICAL ADDICTION STUDIES

We have selected the chapters in this anthology from a much broader array of critical scholarship on addiction. Some of the chapters are classics written long ago, others newly published. With limited space and many worthy candidates, it was painful to have to choose. Our selections only scratch the surface of what is out there. We conclude this introductory chapter by sketching the contours of the basic sensibility a tradition of research we will call *critical addiction studies*. This tradition was formed from many intellectual tributaries, but one key starting point was Alfred Lindesmith's research on opiate addicts (1947), which forced open the biologically deterministic models of opiate addiction that held sway in the first half of the 20th century by showing that addicts were human actors and that addiction was a sociologically contingent outcome. The critical addiction studies tradition would also include many of the scholars and scientists we cite, including John R. Seeley (1959, 1962a,b, 1967), who questioned whether alcoholism is a disease entity beginning in the late 1950s; Howard Becker (1953, 1967), who demonstrated the inherently social character of both subjective experience of drug effects and societal responses to them; Norman Zinberg (1984), whose research on controlled intoxicant use theorized the importance of users' psychological sets and the social settings of drug use in shaping the felt effects and patterns of use; Robin Room, whose voluminous writings about the nature of problem drinking and drug taking and their interaction with public policies have long enriched the field; and many younger scholars such as Nancy Campbell (2010), a historian of science who currently uses ethnographic methods to analyze the "laboratory logics" of biomedical and neuroscientific research that produce knowledge about addiction.

The scientists and scholars working in this tradition have interrogated the fundamental concepts and categories of the field and found far more fluidity and far less solidity than others had

supposed. In this tradition, the new neuroscientific narrative of addiction as a "chronic relapsing brain disease" is the most recent in a long and ever-shifting line. Each provides a piece of the puzzle of addiction, and it is fair to say there has been some cumulative progress. Yet the chapters collected here remind us that the road remains more crooked than the conventional narrative of ever more precise scientific knowledge would have it. The pieces of addiction's history presented in what follows suggest that alongside whatever progress has been achieved, each model of addiction reflects the taken-for-granted premises, prejudices, and politics of the institutions, the epoch, and the culture in which it was born. Most of the chapters that follow share this sensibility and fall within the tradition of critical studies of addiction. Below we sketch in summary form six basic principles that characterize this approach to addiction, most of which we have mentioned in passing in this introduction.

1. **Historical and cultural specificity:** Drug use practices are reproduced and re-invented in the crucible of changing conditions and so they vary and evolve across time and space, history and culture. The same may be said of ways of thinking about addiction, including science and medicine. Concepts of addiction are social constructions, built by actors and deployed by institutions that have specific cultural locations, interests, and ideologies, all of which also evolve over time. People who ingest consciousness-altering substances or engage in consciousness-altering behaviors learn, and sometimes resist, what their cultures and epochs have to teach about the nature of and meanings attached to their experiences. Their beliefs and behaviors also evolve over time. A critical analysis of addiction begins with the principle "that 'addiction' has multiple valences that are best understood within a broader social, political, economic, and historical context" (Netherland, 2012: xvii).
2. **The contextual is integral:** Addictive behaviors are nested within a number of contextual containers that range from the epochal to the interactional—from industrial modernity, mass consumption culture, and globalizing neo-liberalism to subcultures, countercultures, and the repertoires of intoxication, both pleasurable and problematic, that are negotiated with intimates. While such sociological precursors are never wholly determinative, they surely influence the specific structure, valence, and consequences of addictive behaviors. In this sense, addictions cannot be understood as merely the behavior patterns of individuals, as if they were the product of personal choices or personality characteristics alone, but also must be conceptualized as collective probabilities that are woven into the social fabric.
3. **Addiction is sociologically contingent and indeterminate:** As we have tried to suggest in this introduction, human brains, as part of human bodies, are inevitably embedded in a web of social relations that influence decisions and behaviors and thus the experiences that enter the brain. Addictive behaviors are sociologically contingent in multiple ways and therefore emergent and indeterminate to a greater degree than is commonly recognized. The regular ingestion of consciousness-altering, dependence-inducing substances and the physiological and neurological effects thought to follow from this are neither necessary nor sufficient *by themselves* to constitute the effective "cause" of addictive behaviors. There are multiple trajectories into, within, and out of addiction.
4. **Social inequality and differential consequences:** Whether or not drugs are involved, addictive behaviors entail very similar bio-chemical processes in the body and brain. But the lived experience of these processes, the behaviors thought to follow from them, and especially their consequences, are *not* directly determined by the pharmacological properties of drugs or by neurological processes in the addicts' brains. Rather these outcomes vary according to one's position in social structure. Critical addiction studies, therefore, attend to the uneven probabilities of onset, trajectories, and consequences of addictive behaviors that are associated with race, class, gender, and other axes of social inequality.

5. **Multi-disciplinary and multi-vocal investigative strategy:** Because there are many non-pharmacological, non-neurological variables that affect the probabilities and trajectories of addictive behaviors, addiction studies must be multi-disciplinary and holistic, not reductionist. Moreover, because risks and consequences of addiction vary according to social position, a critical addiction studies approach is necessarily multi-vocal. Attending to the voices of those who experience addiction and society's responses to it is essential, as they are the primary sources of subjugated knowledge about addiction, including knowledge about the routes into addiction, informal social controls that reduce risk, strategies for controlled use, and natural recovery.
6. **Consequentialist conceptualization of policy:** Consequentialism is a particular philosophical approach to ethics according to which the rightness or wrongness of an act must be evaluated according to its actual consequences rather than the initial intent. Critical addiction studies take this approach to drug policy. For example, the single most important driver of the largest wave of imprisonment in American history was harsh drug laws passed at the peak of the crack cocaine scare, laws based on what turned out to be racialized, fear-driven myths and misconceptions. Those who embrace the medicalization of addiction often proudly claim to have shifted the frame around addiction from crime needing punishment to disease needing treatment. Some small steps have been taken in this direction, but the claim that addiction is a disease still walks arm in arm with the punitive prohibition laws that have led to the mass incarceration of the powerless. The disease model is invoked daily in drug courts to justify imprisonment, albeit as a spur to treatment "for their own good." As we have noted, drug policies influence both the psychological sets of drug users and the social settings of use and thus have consequences that feed back into the behavior patterns to which they claim to be merely a rational response. Critical addiction studies foreground these relationships because drug policies have so often had profoundly negative effects on human rights and social justice. Critical addiction studies seek to imagine more humane alternative drug policies that can integrate rather than ostracize problem drug users and better reduce drug-related harm.

With the addiction-as-disease paradigm expanding to annex ever more behaviors, it is more important than ever to think critically about the framing of and response to addictions. For if we become pre-occupied with understanding gambling, over-eating, "pathological" Internet use, compulsive sex, or any of a host of other behaviors that may soon be labeled "addiction," as matters of brain chemistry alone, we will end up chasing a phantom. And if laws and public policies are designed to react to these behaviors as if the citizens who engage in them are "diseased," we need to attend to what new forms of social control we are imposing, on what sorts of people, with what consequences.

NOTES

1. Some pieces of this chapter are drawn from Reinarman's article, "Addiction as Accomplishment," *Addiction Research and Theory* 13 (2005).
2. For a useful overview of "behavioral addictions," see Holden (2001); Kershaw (2005) reports on Internet addiction in places like South Korea.
3. Alexander notes that the traditional meaning of addiction was "legally given over to somebody as a bond-slave," or, more broadly, "to have given oneself over, or devoted oneself, to somebody or something." Its definition as a disease appeared for the first time in the *Oxford English Dictionary* in the supplement to the 1933 edition, which happened to be the moment when U.S. alcohol prohibition was repealed (2000), 1.
4. For example, Leshner (1997; 2001); Volkow (2003); Enos (2004).
5. See, e.g., Bertram et al. (1996): 233–41.
6. The disease narrative has also been used to excise moral legitimacy. An extreme example is the use of the "disease" narrative to describe the antebellum condition known as "drapetomania," an alleged "disease" said to cause slaves to flee captivity. This obviously racist, medical junk-science had real-world consequences since one of the prescribed "treatments" was the removal of both big toes to make running away physically impossible.

7. See also Cohen (2000); Schivelbusch (1992).
8. See also MacAndrew and Edgerton (1969); Peele (1989); Davies (1992, 1997).
9. See, e.g., Blackwell (1983, 1985); Hanson et al. (1985); Waldorf et al. (1991); Zinberg (1984).
10. Cited in Zinberg (1984: 39).
11. The APA website for the DSM-5 notes that this new definition "combines the DSM-IV categories of substance abuse and substance dependence into a single disorder measured on a continuum from mild to severe," for each specific substance. http://www.dsm5.org/Documents/Substance%20Use%20Disorder%20Fact%20Sheet.pdf. Accessed 15 May 2014.
12. http://www.huffingtonpost.com/stanton-peele/. Accessed 5 March 2014.
13. These points are insightfully developed by Jose van Dijck (2005), who notes that "Medical imaging technologies not only shape our individual perceptions, but also indirectly contribute to our collective view on disease and therapeutic intervention. . . . Medical imaging technologies play a constitutive role in the formation of norms concerning the perfectibility and modifiability of the human body . . ." although "better pictures do not automatically imply a solution" (2005: 8, 17–18).
14. For a useful overview, see Volkow (2003).
15. For journalistic overviews of these findings on gambling, see Goleman (1989) and Blakeslee (2002); on acts of cooperation and generosity, see Angier (2002); on maternal support, see Moles et al. (2004); on talk therapy, see Brody et al. (2001); on beautiful faces, see Aharon et al. (2001).
16. Alexander and colleagues (1981) demonstrated that in lab experiments where rats are given morphine, the quantity and frequency of use depended on the characteristics of the setting. Rats housed in a rich environment where other rats lived and where other activities were possible ("rat park") consumed dramatically less morphine than rats housed alone in cages where there was nothing to do but ingest morphine.
17. See also the insightful analyses of the neuroscience/brain disease model by Campbell (2007), Levy (2013), and Netherland (2012).
18. Wilkinson and Pickett (2009) and Stiglitz (2012) synthesize a wide array of evidence on this point.
19. See, e.g., Johnson, Leedom, and Muhtadie (2012).
20. See, for example, Reinarman and Levine (1997):77–97.
21. See Schwarz (2013b) on how this idea, and these drugs, were marketed.
22. A physician's recent essay in the *New York Times* noted that "low T," as it has been constructed, "isn't nearly as common as the drug ads for prescription testosterone would have you believe. Pharmaceutical companies have seized on the decline in testosterone levels as pathological and applicable to every man. They aim to convince men that common effects of aging like slowing down a bit and feeling less sexual constitute a new disease, and that they need a prescription to cure it" (La Puma 2014).
23. See, e.g., Hinshaw and Scheffler (2014); Getahun et al. (2013).
24. The cover story of the July 18, 1994, edition of *Time* magazine was headlined "Disorganized? Distracted? Discombobulated? Doctors Say You May Have Attention Deficit Disorder. It's Not Just Kids Who Suffer from It." Four years later, *Time* did another cover story headlined "The Latest on Ritalin: Scientists Last Week Said It Works. But How Do You Know if It's Right for your Kids?" Inside, the article asked "If this little pill makes everything a bit easier, not just for children with severe attention deficit disorders but for more and more kids who are just a little too spacey or jumpy, is there something wrong with the kids, or with us?" (November 30, 1998). The headline for the March 6, 2000, cover story of *U.S. News and World Report* was "Paxil, Prozac, Ritalin . . . Are These Drugs Safe for Kids? Many Parents Are Using Powerful Pills to Control Behavior."
25. See, e.g., Bargmann, Wolfe, and Levin (1982); Haafkens (1997).
26. See Guthman (2011) for an insightful political-economic analysis of food industry processes.
27. For example, Koren et al. (1989) found a systematic acceptance bias against studies that found no effects of cocaine on reproductive health. See Rhodes et al. (2010) on the institutionalized bias against ethnographic and other qualitative research in the scientific literature on drug use.
28. See, e.g., Becker (1967), Weil (1972), and Davies (1992) on these attributional processes.

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