INTOXICATION AND SOCIETY
PROBLEMATIC PLEASURES OF DRUGS AND ALCOHOL

THE FORMATION OF MEDICAL EXPERTISE

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The historical past has been influential in deciding our present and future attitudes to drugs long charged with cultural tensions. This historical past belongs both to the historian, legislator, social scientist and neuroscientist; different sorts of people, professing different academic disciplines. The unique configurations of people, practices, and institutions that flourish today have deep histories that cannot be studied by the checks and balances of rigorous scientific investigation. The comparative method, sometimes called the natural experiment, has its critics. Concerns include the possibility of the outcome being dependent on factors other than those measured. However, this holds for any science concerned with the past, including evolutionary biology and epidemiology. One cannot manipulate the past and must employ methods of analytical observation to provide individual explanations within a larger framework to establish chains of cause and effect (Diamond and Robinson, 2010).

It is important to be clear about what we mean by a drug; not all are medicines. They are substances with distinct chemical properties and physical and psychological effects. Some are distinguished by the fact that they act on the central nervous system and may be used to change thoughts, feelings, perceptions, or behaviour. Drugs are used in religious ceremonies, as medical treatments, for fun and recreation; they can cause disease, they can lead to vice and crime. Some are also known as ‘drugs of abuse,’ a social description rather than a pharmacological property, as when used freely their effects are considered dangerous enough to create a health hazard and/or social problem. Among them are the opiates heroin and morphine, the stimulants nicotine, amphetamine and cocaine, and sedatives like the barbiturates and alcohol. Morphine is a powerful medicine yet, in certain contexts, its procurement can be associated with crime, and certainly not considered to be a drug for recreation. Alcohol, self-prescribed, is fun unless you use too much, and then it can lead to physical illness and addiction; it is never a medicine. Caffeine is a utilitarian drug used to wake us in the morning and stave off fatigue during the day. Caffeine is available to all; coffee may not be advisable for children but caffeine is contained in the majority of their favoured carbonated drinks. The problem that has eluded contemporary society is how to keep these categories separate. Society’s response to the use and control of these recreational drugs, particularly over the 20th century, might best be described in terms of their historical antecedents rather than logic. Despite little being known of their pharmacology, our legislators often based their opinions on personal agendas and the inflation of their institutions, always with great pretence and, sometimes, fraud. Surprisingly, as a general rule, alcohol
being an exception, a single common thread exists – the drug laws of all nations are similar, despite some variations in severity (Bakalar and Grinspoon, 1984).

The body of information and expertise that we apply in the legislation of drugs has evolved from its origins in the Enlightenment around the time when Newton produced his *Principia* in 1687. This great monograph laid the foundations for classical mechanics that were necessary to describe gravity and the laws of motion; a publication that dominated the scientific view of the physical universe for the next three centuries. The idolization of Newton led many, notably Herman Boerhaave (1668-1738), to attempt application of the laws of physics to medicine in order to understand the mechanisms of disease. Much of this was overambitious theorizing and no real progress was made until medicine engaged with the newly emergent ‘biology’ that posed key questions about the scientific understanding of life itself. This, when combined with advances in chemistry, for example, led to understanding respiration (Antoine Lavoisier, 1743-1794) and the identification of novel gases such as nitrous oxide (Joseph Priestley, 1733-1804), that later proved to be an effective anaesthetic. Anatomy and physiology engaged in this dialogue with experimental science, notably through the work of Claude Bernard (1813-1878). The concept of disease, however, remained to be resolved. The conviction that post-mortem investigation was the key to bodily changes brought about by disease was largely due to Giovanni Battista Morgagni (1682-1771) and, building on this work, Matthew Baillie (1761-1823) provided classical descriptions of pathology, including cirrhosis of the liver. Thus, the Renaissance continued to inspire many scholars to revolutionise biology and medicine in the same manner that had remade physics and astronomy but the problems were vast and complex, the weight of past traditions pressing, and the sum total of medical knowledge small. As to what caused diseases, William Osler (1849-1919), one of the founding fathers of modern medicine, asserted that man knew little more at the end of the 19th century than had the ancient Greeks (Porter, 1997).

Physicians, anxious to get a single explanation for disease, as scientists had with gravity, became disillusioned when presented with greater complications and increasing confusion and resorted to creating vast theoretical medical schemes using speculative logic. Although physicians were commonly mocked for their therapeutic pretensions, the very existence of their role testified to the overall esteem in which formal medical knowledge was held and the overall efficacy attributed to that knowledge. Medicine was therefore one important domain within which natural knowledge enjoyed well-established social authority and credibility. Many of the medications conceived were built on the ancient beliefs of Galen (AD 129-217), the ‘galenicals,’ and Paracelsus (1493-1541), the ‘chymicals.’ From the 18th to the mid-20th century, both England and America possessed an eager and eclectic appetite for these quack remedies (Young, 1961). Many of these patent medicines, or nostrums, contained numerous ingredients. Theriaca (Venice Treacle) contained thirtyeight constituents, and many relied on alcohol, opium and/or cocaine to produce some form of effect. In a time when doctors could
only offer the heroic treatments of bleeding, emesis and purgation as therapy for illness, people found solace in these dubious medicaments compounded by unscrupulous dealers.

Despite increasing concerns about their safety, the market for patent medicines soared as self-restraint proved an inadequate force in protecting the medicine-consuming public. Public concern about patent medicines, particularly those containing opium, combined with the increasing self-confidence of the medical professions, through the organisation of the General Medical Council by the 1858 Medical Act and the inauguration of The Pharmaceutical Society in 1841, led to the 1868 Pharmacy Act. Similarly, agitation in America, notably through the writings of Samuel Hopkins Adams (1871–1958), was instrumental in the passage of a Federal Pure Food and Drugs Act in 1906. These two bills all but removed the use of narcotics from the formulae of these medicines but also ceded control of drug legislation to the government. As the German physician and statesman Rudolf Virchow wrote at the turn of the 20th century, “Medicine is a social science, and politics is nothing but medicine writ large.” The conception of health had now left its sources in biology far behind. In effect, the law established a distinction between prescription and non-prescription drugs for the first time. More elaborate restrictions introduced in the 1950s and 1960s gradually took decisions on which drugs could be prescribed away from physicians and transferred them increasingly to government. Consumers have not had the right to choose opiates or cocaine since the turn of the 20th century (Bakalar and Grinspoon, 1984).

Drug use, however, is a difficult social policy because it is so complicated and ambiguous. The most important justification for strict legal and social controls on drugs is dependency and addiction. It provides the best reason for saying that the drug user is not free, and anyone exposed to the drug may lose personal freedom. The idea of classifying drug abuse as a disease, introduced in the 18th century but not ratified by the American Medical Association until 1958, did not arise from any new scientific knowledge; we now little more in that sense than we knew two centuries ago. The concept that alcohol addiction might be a disease was facilitated by the failure of Prohibition in the States (1920-1933), although job creation in the alcohol-related industry during the Great Depression (ca. 1930-1940) would have, in part, been a contributory factor, and revulsion to the legitimised sterilisation of an unknown number of alcohol-dependent individuals during the Nazi dictatorship in Europe. A decisive turning point, however, was the founding of Alcoholics Anonymous (1935), an organisation that viewed alcoholism as a progressive disease and not a moral failing. Increasing recognition of the serious withdrawal symptoms, such as convulsions and delirium, further reinforced the idea of the pharmacological action of alcohol that induced both a state of craving and an inability to abstain. In the early 1950s, the World Organization (WHO) attempted to conceptualize the phenomenon of addiction as being the direct consequence of specific substances. By 1964 WHO had replaced the term addiction with drug dependence and, in a major change in 1969, that compulsive behaviour, and not physical dependence, was its
defining characteristic. The final WHO terminology of dependence syndrome was adopted in 1998 (Mann et al., 2000; Gilson 2010). This coincided with a period of intense neurobiological research, notably by George Koob and colleagues in the United States, which suggested that alcohol dependence was an aberration of the normal homeostatic state of the body arising from alcohol-induced loss of brain excitatory neurotransmission and a corresponding increase in the activity of the inhibitory system (Koob and LeMoal, 2001).

The notion that drugs of abuse might alter the balance of neurotransmission by acting through defined cell surface receptors on neurons has its origins in the late 19th century. The German scientist Paul Erhlich (1854-1915) introduced the term ‘receptor’ to describe sites on the cell to which drugs bind to bring about changes in cellular metabolism. This idea was supported by the Cambridge physiologist John Newport Langley (1852-1925) who demonstrated the key concept that the binding, or affinity, of the drug to the receptor as an agonist caused the effect, which he termed its efficacy. Alfred Joseph Clark (1885-1941), a pharmacologist working at University College London, added the final touch by demonstrating that the relationship between drug dose and response could be described by a mathematical equation (Flower, 2002). The basic mechanism by which drugs could have lasting effects on the body was in place. The human fate of addiction was no longer passively determined by genetic constitution, but by environmental stimuli, such as drugs of abuse, that differentially regulate gene expression. The public authority of the scientist could now flow from expertise.

As 21st century society moves further towards professional hegemony in the regulation and control of drugs, knowing more has become associated with the power to do more. Yet all scientific statements and laws have a single common characteristic: they are ‘true’ or ‘false.’ This imposes a significant limitation on the types of questions that can be answered by scientists and the authority of their knowledge (Shapin, 2008). There cannot be immoral science no more than there can be scientific morals. The physicist and Nobel Laureate Richard Feynman (1918-1988) has opined that: “As far as I know in the gathering of scientific evidence, there doesn’t seem to be anywhere, anything that says whether the Golden Rule is a good one or not.” Ethics and science do not share the same domain.

**Literature cited**


