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ARTICLE

The Failed Globalization of Psychedelic Drugs in the Early Modern World

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Abstract

This article reassesses what has been called 'the puzzle of distribution': why did some drugs rapidly emerge as global consumer goods in the era of the Columbian Exchange, whereas others remained restricted to regional centres of usage? I argue here that the early modern concept of transplantation allows us to approach the puzzle of distribution from a novel perspective. Early modern intoxicants were not disaggregated, free-floating commodities. Their consumption and trade took place within a larger constellation of social codes, cultural practices, ecologies, and built environments. Psychedelic compounds such as peyote and ayahuasca serve here as case studies for examining how the globalization of drugs involved far more than the transport of the substances themselves. Despite their centrality to numerous societies throughout the pre-Columbian Americas, the larger 'assemblage' of material cultures, cultural assumptions, and religious meanings that accrued around these substances made it difficult for them to follow the same paths as commodified drugs like cacao or tobacco.

Why did some drugs, like tobacco, move readily across cultural and geographic barriers in the early modern era, while others, such as peyote, ayahuasca, and psilocybin mushrooms, remained confined to specific regions? What was it that made some substances into global commodities, but not others? This 'great divergence of drugs' in the seventeenth and eighteenth centuries, to adapt a phrase from economic history, has yet to be fully explained.[1]

The best attempt to date comes from the historian David Courtwright, who calls this question 'the puzzle of distribution'.[2] Courtwright notes the importance of 'timing, luck, finance, politics, organization, cultural predilection, elite preference, and even marital alliances' in determining why and when specific

[1] Kenneth Pomeranz, *The great divergence: Europe, China, and the making of the modern world economy* (Princeton, NJ, 2000).

[2] David Courtwright, *Forces of habit: drugs and the making of the modern world* (Cambridge, MA, 2001), p. 53.

drugs became globalized.[3] Above all, he emphasizes the role played by the biases of early modern European drug consumers. Courtwright's description of the Americas as a 'psychedelic Eden' encapsulates both the fascination and the fear that early modern Europeans brought to bear on New World drugs.

Early European descriptions of substances now classified as psychedelic drugs or 'entheogens', such as peyote, psilocybin, and ayahuasca, readily acknowledged their power. Many also denounced them as supposed tools of the devil. Juan de Zumárraga, the first bishop of Mexico, established a long-lasting precedent when he oversaw the 1537 trial of a Nahua man named Andrés Mixcoatl, who had been accused of fortune-telling using a 'little mushroom, which is a demonic thing'. Consuming this mushroom, according to the investigations of one of Zumárraga's associates, allowed the consumer 'to lose one's sense and see demonic visions … it is said that one can see if they are going to die soon or if they will be rich or poor or if some misfortune will befall them'.[4] Likewise, the Jesuit missionary Pablo Maroni portrayed ayahuasca as potentially dangerous ('very effective for depriving one of one's senses, or even of one's life') and as part of a larger set of practices supposedly used by Amazonian shamans to 'consult the devil'. On the other hand, Maroni also noted that the drug was 'used to cure common infirmities, principally headaches'.[5]

In short, Europeans applied 'demonological' understandings of New World drugs in highly selective ways. Contemporary scholarship on peyote and ayahuasca, for instance, tends to emphasize the impact of legal and religious prohibitions such as the 1620 Inquisition decree that officially banned peyote use in New Spain.[6] It is worth remembering, however, that tobacco was *also* repeatedly banned throughout the same period, from Persia (1627) to Russia (1634) and to the Ottoman empire (1633).[7] The same holds for claims of Satanic influence: as late as the second half of the seventeenth century, a Spanish chronicler wrote of Aztec priests who used a preparation of tobacco in order to become 'demented' and 'lose their understanding, in order to understand the devil'.[8] In the long term, accounts such as these did little to dissuade

[3] Ibid., p. 59.

[4] Francisco Marmolejo, 'Relación de lo que sucedió en Quahuohinanoo' (1537), in Luis González Obregón, ed., *Procesos de indios idólatras y hechiceros* (Mexico City, 2002), p. 58. See also Martin Nesvig, 'Sandcastles of the mind: hallucinogens and cultural memory', in Stacey Schwartzkopf and Kathryn Sampeck, eds., *Substance and seduction: ingested commodities in early modern Mesoamerica* (Austin, TX, 2017), pp. 27–54, at pp. 33–4.

[5] Pablo Maroni, 'Capítulo tercero: lenguas, natural y costumbres mas memorables de las naciones del Marañon', in 'Noticias auténticas del famoso río Marañón … escribíalas por los años de 1738', *Boletín de la Sociedad Geográfica de Madrid*, 27 (1889), pp. 47–101, at pp. 54–5.

[6] Alexander S. Dawson, *The peyote effect: from the Inquisition to the War on Drugs* (Oakland, CA, 2018). See also Benjamin Breen, *The age of intoxication: origins of the global drug trade* (Philadelphia, PA, 2019), pp. 139–40.

[7] See Tricia Starks, *Smoking under the tsars: a history of tobacco in imperial Russia* (Ithaca, NY, 2018); and Rudi Matthee, *The pursuit of pleasure: drugs and stimulants in Iranian history, 1500–1900* (Princeton, NJ, 2005), pp. 138–9.

[8] Antonio de Solís y Ribadeneyra, *Historia de la conquista de Mexico* (Barcelona, 1691), p. 247. See also Mercedes de la Garza, *Sueño y alucinación en el mundo Nahuatl y Maya* (Mexico City, 1990), pp. 42, 51–3.

tobacco consumers in Europe and beyond. It is not enough to explain this divergence by arguing that entheogens followed a different path from that of tobacco because of their inherent biological properties. Set, setting, and route of administration profoundly alter how humans experience a drug.[9] As a result, we must be wary of imposing contemporary expectations on past cultures of drug use.

It is tempting to assume that the altered states produced by tobacco, for instance, were regarded in the early modern period as more benign or appealing than the states produced by psychedelic plants. Yet there is nothing about tobacco that, on a biological level, makes it inherently more 'recreational' than psilocybin. Indeed, nicotine's LD_{50} (the amount of a substance projected to kill 50 per cent of a test sample) has since been found to be far lower than that of psilocybin. A recent literature review estimated that the LD_{50} for nicotine corresponded to the amount found in approximately forty-two standard cigarettes. By contrast, one estimate of psilocybin's LD_{50} arrived at a quantity that was 1,000 times greater than the amount required to produce noticeable psychoactive effects.[10] True, in the present day, tobacco use is associated with convenient and legal routes of administration (such as cigarettes), whereas psychedelic drug use is associated with intensive, psychologically destabilizing, and physically demanding multi-hour 'trips'. Yet in other times and places, tobacco – especially the high-potency tobacco species *Nicotiana rustica* – has also been used as a sacramental drug taken in high doses to induce visionary states.[11] Even the Spanish physician Nicolás Monardes, among the most enthusiastic European commentators on tobacco, warned that when the drug was taken 'to get drunk' (*para emborracharse*) it provoked dangerous 'fantasies and visions' which 'the devil ... having knowledge of the virtues of these herbs' exploited to 'deceive' users.[12] By contrast, one early Spanish description of the Mexican peyote cactus (which contains mescaline, a powerful hallucinogenic compound) makes no reference to its hallucinogenic effects. Instead, this account mentions only that peyote can help treat stiff necks.[13]

[9] Ido Hartogsohn, 'Constructing drug effects: a history of set and setting', *Drug Science, Policy and Law*, 3 (2017), https://doi.org/10.1177/2050324516683325; Robin L. Carhart-Harris, Leor Roseman, Eline Haijen, David Erritzoe, Rosalind Watts, Igor Branchi, and Mendel Kaelen, 'Psychedelics and the essential importance of context', *Journal of Psychopharmacology*, 32 (2018), pp. 725–31.

[10] Bernd Mayer, 'How much nicotine kills a human? Tracing back the generally accepted lethal dose to dubious self-experiments in the nineteenth century', *Archives of Toxicology*, 88 (2014), pp. 5–7; Ricardo Jorge Dinis-Oliveira, 'Metabolism of psilocybin and psilocin: clinical and forensic toxicological relevance', *Drug Metabolism Reviews*, 49 (2017), pp. 84–91.

[11] David Tavárez, *The invisible war: Indigenous devotions, discipline, and dissent in colonial Mexico* (Stanford, CA, 2011), p. 94. On pre-Columbian trade and transplantation of *Nicotiana rustica*, see Alexander von Gernet, 'North American indigenous *Nicotiana* use and tobacco shamanism', in Joseph C. Winter, ed., *Tobacco use by native North Americans: sacred smoke and silent killer* (Norman, OK, 2000), pp. 59–80.

[12] Nicolás Monardes, *Primera y segunda y tercera partes de la historia medicinal de las cosas que se traen de nuestras indias occidentales* (Seville, 1574), fo. 47v.

[13] Padre Francisco Losa, *Vida del siervo de dios Gregorio Lopez ... a que se añaden los escritos del apocalypsi, y tesoro de medicina* (Madrid, 1727), p. 367. Losa's work originally appeared posthumously in a printed edition in 1673. Variant manuscript versions are held by the Biblioteca Nacional in Madrid and the Vatican. Rafael Chábran and Simon Varey speculate that elements of Lopez's medical writings derive from the work of Francisco Hernández. See Simon Varey and Rafael Chabrán, eds., *The*

I argue here that the early modern concept of transplantation allows us to approach the puzzle of distribution from a novel perspective. In its literal sense, transplantation refers to the transfer of crops from one place to another. But it was used more broadly by early modern Europeans, who might speak of the transplantation of a disease or of a healing property. Transplantation could, for instance, describe the movement of latent 'virtues' between an Egyptian mummy and those who consumed that mummy as a drug (*mumia*).[14] A 1653 treatise on 'sympatheticall mumie' explained: '*Transplantation* is nothing else but a mutuall propagation of one thing into another ... by a *Magneticall* virtue'.[15] This more capacious understanding of transplantation as a force akin to magnetism provided an important way of theorizing the action of intoxicants on the mind as a transfer of invisible forces between two bodies separated in space and time. And just as 'virtues' could be transplanted, so too could human societies.[16] The French jurist Jean Bodin compared humans to transplanted crops which respond in complex ways to the environment of the place to which they are carried. Imagining a group of settlers 'transplanted into another countrey', he speculated that 'the people will soone returne to their natural dispositions'. Bodin compared them to 'plants which draw their nourishment from the earth'.[17]

In short, transplanting a drug in the early modern period was not a simple act of material transfer. It implied the movement of a larger *assemblage* of medical and environmental knowledge, material culture, and societal norms. (In archaeology, an assemblage is a 'group of artifacts recurring together at a particular time and place, and representing the sum of human activities'; here, I use the term to denote the material artefacts and cultural practices that accrued around a given drug.[18]) Attending to this larger grouping of practices and techniques – which were often at least as important to the successful transplantation of a drug as the substance itself – may help to better explain the differential globalization of early modern drugs.

Mexican treasury: the writings of Dr. Francisco Hernández (Stanford, CA, 2001), p. 7. On early Spanish accounts of peyote, see Angélica Morales-Sarabia, 'Peyote and ololiuhqui in the medical texts of New Spain and their circulation in Spain during the 16th and 17th centuries', in Martina Kaller and Frank Jacob, eds., *Transatlantic trade and global cultural transfers since 1492: more than commodities* (London, 2020), pp. 129–48; Matías Alvarez, 'Las plantas psicotrópicas americanas en la obra de Juan de Cárdenas. Nueva España, 1591', *Fronteras de la Historia*, 19, no. 2 (2014), pp. 14–36.

[14] Karl H. Dannenfeldt, 'Egyptian mumia: the sixteenth century experience and debate', *Sixteenth Century Journal*, 16 (1985), pp. 163–80; Richard Sugg, *Mummies, cannibals and vampires: the history of corpse medicine from the Renaissance to the Victorians* (London, 2011), pp. 67–77.

[15] Ferdinand Parkhurst, *Medicina diastatica, or sympatheticall mumie: containing many mysterious and hidden secrets* (London, 1653), p. 28. The book claims to be a translation of Paracelsus, and the use of 'mumie' in this quote refers to the Paracelsian notion of *mumia* as a kind of abstracted life force, persisting after death.

[16] See, for instance, Joseph Hall's biblical gloss, 'Thy citizens are transplanted, and carried over the sea'. Joseph Hall, *A plaine and familiar explication (by way of paraphrase) of all the hard texts of the whole divine scripture* (London, 1633), p. 416.

[17] Jean Bodin, *Of the lawes and customes of a common-wealth*, trans. Richard Knolles (London, 1606), p. 566.

[18] Colin Renfrew and Paul Bahn, *Archaeology: theories, methods, and practice* (London, 2008).

I

The era of what Alfred Crosby called the 'Columbian Exchange' has long been recognized as a decisive moment in the history of drugs, medicine, and ecological change.[19] To be sure, key crops such as corn, potatoes, and tobacco had been transplanted across considerable distances within the premodern Americas, long before the arrival of Columbus.[20] But the post-1492 period brought with it a new potential for truly global transfers, resulting in a wholesale transformation of ecosystems across the tropical belt.[21]

As we have seen, early modern Europeans used the term 'transplantation' (or its cognates) to describe practical techniques of *moving* drug crops from one physical location to another, but they also employed the term to describe the *effects* of drugs on mind or body. A cinchona plant could be transplanted by carrying its seeds from one region to another and cultivating the resulting seedlings. Likewise, its virtues could also be transplanted, invisibly and immaterially, via the powers of 'sympathy'. In 1721, the Portuguese author Rafael Bluteau defined *transplantação* largely in relation to this second sense of the word. He described 'the transplantation of an illness … from one body to another, which happens magnetically, transmitting through the air a portion of the vital spirits'.[22] This meaning employed the word's original sense, derived from the Latin *transplantare* (*trans-*, across, and *plantare*, to plant), as a metaphor for understanding how diseases and 'virtues' could be transferred from one body to another. Such transplantations depended not just on physical proximity, but on some more nebulous form of affinity. As the Spanish physician Francisco Suárez de Ribera warned, 'one should not seek transplantation into a plant, or an animal, of an enemy, or [one] that is contrary to nature'. Elsewhere, Ribera described 'cure by transplantation' as 'the introduction of an infirmity into some plant, or mineral, or animal, or into a part of it, in such a way that the morbid essence remains and the patient is cured'.[23]

The concept of an invisible transfer of virtues also informed early modern understandings of intoxication. The category of 'intoxicant' could extend beyond the purely material: psychoactive states could be induced by astrological conjunctions, by 'bad airs', or by the transfer of some invisible essence latent within another substance. For instance, Bluteau's dictionary entry claimed that drinking 'the blood of an animal' could produce 'a transplantation of ideas … communicating to he who drinks of it the behaviour and manners of

[19] Alfred W. Crosby, *The Columbian exchange: biological and cultural consequences of 1492* (Hartford, CT, 2003).

[20] Elizabeth Anne Bollwerk and Shannon Tushingham, eds., *Perspectives on the archaeology of pipes, tobacco and other smoke plants in the ancient Americas* (New York, NY, 2016).

[21] Christopher M. Parsons, *A not-so-new world: empire and environment in French colonial North America* (Philadelphia, PA, 2018); Robert A. Voeks, 'Disturbance pharmacopoeias: medicine and myth from the humid tropics', *Annals of the Association of American Geographers*, 94 (2004), pp. 868–88.

[22] Rafael Bluteau, *Vocabulario Portuguez, & Latino: aulico, anatomico, architectonico, bellico, botanico, Brasilico, comico, critico, chimico, dogmatico, dialectico…*, vol. 8 (Lisbon, 1721), pp. 247–8.

[23] Francisco Suárez de Ribera, *Amenidades de la magia chyrurgica, y medica, natural* (Madrid, 1736), pp. 158–9 and 140.

the said animal'. This was not just a transfer of external behaviours ('it is said that they who drink the blood of the cat walk on fences and give chase to mice') but of 'the powers of the imagination'.[24] In other words, psychoactive substances were not only physically transplanted to create new cultivars and new growing regions. Their psychoactive essence could also be transplanted into the minds of consumers, altering the 'ideas' and 'imagination' of those who 'experienced (*experimenta*) this transplantation'.

The notion of transplanting intoxication thus involved more than the physical act of carrying a plant from one place to another and propagating it in new soil. It depended on the mental state of the consumer, as well as their specific constitutional make-up, and a host of other factors relating to the place, time, and context of consumption. In this regard, the early modern European concept of transplantation can be seen as an outgrowth of medieval humoral theory, with its emphasis on the parallels and interactions between the microcosm of substances within the body and the macrocosm of forces in the universe. But it also emerged from ecological and epidemic transfers of the Columbian Exchange. The act of moving a psychoactive drug out of its native growing region and consuming it elsewhere was fraught with pharmacological possibility, and with danger. Making a drug seem 'safe', and thus commodifiable, depended not just on its inherent characteristics, but also on the degree to which a given drug's 'assemblage' – the technologies of consumption, the spaces in which consumption took place, and contextual knowledge about its preparation and use – could be transplanted into new settings in such a way as to avoid becoming 'contrary to nature'.

This did not mean that, in order for a drug to globalize, it had to be accompanied by all of its original context. In the case of tobacco, for example, the technology of smoking appears to have been largely (although perhaps not entirely) unknown in pre-Columbian Europe. Tobacco was soon integrated into a dizzying range of novel social contexts and medical techniques.[25] As Marcy Norton has demonstrated, however, tobacco did retain *some* of its cultural and social context even as it journeyed across the Atlantic. It continued to be associated with hospitality and guests, and the medical virtues associated with tobacco in Aztec medicine appear to have influenced the early accounts by European physicians such as Nicolás Monardes and Francisco Hernández.[26] Though tobacco was imperfectly transplanted at best, it still managed to retain at least some of the context that had surrounded it in pre-Columbian usage. A pipe offered in friendship, a puff taken to dry the humours: both were likely to be familiar to early modern consumers, regardless of whether they spoke Neapolitan or Nahuatl.

[24] Bluteau, *Vocabulario Portuguez, & Latino*, pp. 247–8.

[25] Marcy Norton, *Sacred gifts, profane, pleasures: a history of tobacco and chocolate in the Atlantic world* (Ithaca, NY, 2008), pp. 259 and 318; Chris Duvall, *The African roots of marijuana* (Durham, NC, 2019), ch. 1; Benjamin Breen, 'Where there's smoke, there's fire: pyric technologies and African pipes in the early modern world', *Osiris*, 37 (forthcoming 2022).

[26] Marcy Norton, 'Tasting empire: chocolate and the European internalization of Mesoamerican aesthetics', *American Historical Review*, 111 (2006), pp. 660–91.

II

In what specific ways, then, does the early modern concept of transplantation give us a new angle on older explanations for the great divergence of drugs? The case of coca (a catch-all term for a number of cocaine-containing plants from the *Erythroxylaceae* family) can furnish one example.

Some have argued that a key roadblock preventing coca from becoming a global commodity like tobacco or coffee was an inescapable material factor: coca leaves are said to lose their potency when carried long distances, especially in the difficult conditions of a tropical ship's hold.[27] But early modern apothecaries and natural philosophers were well aware of this characteristic of some plants, envisioned as an inability to effectively transfer the full virtues of a plant from one continent to another.[28] The physician Duarte Madeira Arraiz, for instance, drew on his observation of 'fruits which have been brought from the Indies to Europe' and 'seeds from our gardens transmuted (*trãsmudada*) to Brazil' which 'grow weaker' owing to the long journey. Arraiz used these cases as evidence for his theory that what he called the contagious 'seeds' of syphilis had, likewise, 'been rendered each time more weak, when carried from one place to another' by sufferers of the disease travelling across the Atlantic.[29]

Nor were early modern medical experts ignorant of potential solutions for the loss of virtues caused by the storage or transplantation of drugs. For instance, a simple extraction of a botanical in an ethanol solution (using readily available spirits like rum or eau de vie) can convert many alkaloids into a more stable form that preserves psychoactive alkaloids. Early modern apothecaries did not conceptualize this process using modern terminology, but they were well aware of the practical uses of alcoholic spirits as a method for preserving the potency of drugs. It was commonplace for apothecaries of the seventeenth and eighteenth centuries to use high-proof alcohol to create tinctures that preserved the medical virtues of drugs from far-flung locales, like nutmeg or opium. One representative text encouraged the use of alcoholic spirits 'to keep Tinctures of all those Roots and Barks, which are said to be good dried' because 'a Tincture will contain more or less of the Virtue of every one of these'.[30]

Perhaps the most prominent use of this technique involved the preservation of the antimalarial bark known as quina or cinchona. This bark grew in a similar ecological zone (the mountain valleys of the Andes) to coca. Quina, too, was known to lose potency during long ship voyages if not properly processed via tincturing in spirits or wine, a practice that quickly became

[27] H. Richard Friman, 'Germany and the transformations of cocaine, 1880–1920', in Paul Gootenberg, ed., *Cocaine: global histories* (London, 2000), pp. 83–104, at p. 86.

[28] Duarte Ribeiro de Macedo, 'Discurso sobre a transplantação das plantas de especiarias da Asia para a América' ('Discourse on the transplantation of spice plants from Asia to America'), Arquivo Nacional da Torre do Tombo, Lisbon, T/TT/MSBR/39.

[29] Duarte Madeira Arraiz, *Methodo de conhecer e curar o morbo gallico* (*Method of recognizing and curing the French disease*) (Lisbon, 1683), p. 18.

[30] John Hill, *The useful family herbal* (London, 1754), p. xxxix.

widespread.[31] The question then arises: if early modern drug merchants and apothecaries were able to overcome this barrier to transplanting quina's 'virtues' intact, why did they not do the same with coca? In the end, the explanation for a drug's failure to commodify can rarely, if ever, be laid at the feet of any unitary biological property of that drug.

A related explanation hinges not on the difficulty of carrying a substance over long distances, but on the challenges of cultivating it in different climates. Coca plants typically require high-altitude growing regions, making large-scale crop transplantation difficult. By contrast, tobacco leaves retain potency in difficult conditions, and *Nicotiana tabacum* is capable of growing in many climactic zones. As we know from existing work on attempts to transport botanical specimens across oceans, the happenstance of plant biology – and, in particular, a plant's tolerance to climactic extremes – can play an important role in the global distribution of a crop.[32] But here again, early modern individuals had a well-developed set of techniques and tools at their disposal. Orangeries were perfected in seventeenth-century Europe, allowing citrus plants to thrive through snowy winters. Even the notoriously finnicky silkworm was successfully transplanted to Virginia by the mid-seventeenth century after a difficult start earlier in the century, a fact that greatly interested Portuguese imperial administrators who were confident that Indian spices could, likewise, be transplanted to the New World.[33] And although some commenters protested against the resulting influx of 'foreign' drugs and medicines, others advocated for the art of transplanting crops that were not only non-native, but climactically unsuited. 'It cannot be denied', wrote the Spanish dramatist Tirso de Molina in 1624, 'that trees are of more use when they are transplanted … the fruits, the drugs, the medicines, the metals, and the merchandise in their own provinces and natural [places] are of less esteem, than in alien [places]'.[34]

In other words, it is not enough to assume that Europeans rejected certain intoxicants because of concerns about their foreign origins, or because of the material difficulties of transplanting or shipping them. Mescaline-containing cacti, such as peyote or San Pedro, are relatively easy to grow and transplant.[35] They are also widely distributed across a growing range that extends from Texas to Peru, and were used extensively in both Andean and Mesoamerican societies. So why were hallucinogenic cacti, and other psychedelic drugs, not part of the Columbian Exchange?

[31] Matthew James Crawford, 'An empire's extract: chemical manipulations of cinchona bark in the eighteenth-century Spanish Atlantic world', *Osiris*, 29 (2014), pp. 215–29.

[32] Christopher Parsons and Kathleen Murphy, 'Ecosystems under sail: specimen transport in the eighteenth-century French and British Atlantics', *Early American Studies*, 10 (2012), pp. 503–29.

[33] Edwards Williams, *Virgo triumphans* (London, 1650). On late seventeenth-century Portuguese efforts to transplant spices that were inspired by the case of Virginia, see Ribeiro de Macedo, 'Discurso'; Breen, *Age of intoxication*, pp. 95–7.

[34] Tirso de Molina, *Cigarrales de Toledo* (Madrid, 1624), p. 253.

[35] George R. Morgan and Omer C. Stewart, 'Peyote trade in south Texas', *Southwestern Historical Quarterly*, 87 (1984), pp. 269–96.

III

David Courtwright speculates that New World hallucinogens failed to succeed with European consumers because they were 'uninterested in shaky blastoffs to the spirit world'.[36] Yet, as we have seen, early modern Europeans appear to have been quite interested in accounts of the 'transplantation' of the 'ideas' of an animal into the mind of a human, or the communication of profoundly mind-altering forces at a distance by means of amulets, sigils, curses, or even medicinal cannibalism. These practices of transplantation were thought to induce profound mental and physical transformations, and were closely tied to mystical and spiritual understandings of drugs and their relation to human health.[37] Meanwhile, books rolling off printing presses throughout early modern Europe abounded with accounts of transcendent spiritual experiences authored by monks, nuns, and laypeople convinced that they had experienced apocalyptic visions or performed bizarre and miraculous feats, like those of the Peruvian mystic who claimed to be able to 'bilocate' to Japan and Mexico.[38] One particularly outlandish account, from the Florentine sculptor Benvenuto Cellini, laconically described Cellini's role in helping a 'necromancer' summon 'devils' in the Roman Coliseum by means of 'drugs of a fetid odour'.[39] True, *these* 'blastoffs into the spirit world' took place, at least nominally, within a Christian context, and most indigenous American use of hallucinogens did not. Again, however, the cases of tobacco and chocolate show how readily substances that had been pre-Columbian ritual sacraments could become incorporated into Christian modes of life, including spiritual practice.[40]

Although set and setting are powerful shapers of a drug's perceived effects, it is certainly the case that the biological traits of psychoactive compounds also play a role.[41] Perhaps, then, the problem was not so much that Europeans were frightened off by either intoxication or visionary states; instead, perhaps the distinctive effects of the psychedelic drugs were simply so radically unfamiliar, on an experiential level, that they could not be integrated into a European conception of *acceptable forms* of intoxication.[42]

[36] Courtwright, *Forces of habit*, p. 57.

[37] Robert Boyle, *Some considerations touching the usefulnesse of experimental naturall philosophy* (London, 1663), pp. 225–6.

[38] Martin de Porres claimed to be capable of bilocating from Lima to Mexico City, Kyoto, and Manila. See Celia Cussen, *The life and afterlife of Fray Martin de Porres, Afroperuvian saint* (Cambridge, 2014), p. 122.

[39] Benvenuto Cellini, *The autobiography of Benvenuto Cellini* (London, 1910), p. 133.

[40] Norton, *Sacred gifts*.

[41] Randolph M. Nesse and Kent C. Berridge, 'Psychoactive drug use in evolutionary perspective', *Science*, 278, no. 5335 (1997), pp. 63–6.

[42] Tryptamines, which include the psychoactive alkaloids found in peyote and ayahuasca, occur readily in nature (and, indeed, within the human brain). Their remarkable diversity was chronicled by the semi-underground chemist Alexander Shulgin in his book *TIHKAL (tryptamines I have known and loved)* (Lafayette, CA, 1997), which listed no fewer than fifty-five distinct mind-altering tryptamine alkaloids.

Although I believe that an explanation along these lines can account for part of the problem, it still leaves much unexplained. As Emma Spary has noted, claims about the inherent properties of drugs have a tendency to fall apart when viewed through a historicist lens.[43] As we have seen, tobacco – a substance now regarded as having relatively mild psychoactive properties – was initially attacked as a potent intoxicant and tool of Satan (most famously by no less an authority than King James VI and I of Scotland and England).[44] And we cannot assume that early modern Europeans, as a whole, feared unfamiliar forms of psychoactivity. Some seventeenth-century consumers, at least, seem to have been receptive to new opiates like Sydenham's drops, sludgy Turkish-style black coffee, or strong tobacco taken not just as smoke but as a potent snuff or even via enemas.

In short, consumers throughout the early modern world often seem to have *embraced* novel forms of intoxication in the seventeenth century. And the subjective 'flavour' of that intoxication is by no means fully knowable via the retroactive historical application of pharmacology or biology.

IV

Sidney Mintz's concept of 'drug foods' helps us to think through one potential point of divergence between the New World drugs which globalized readily in the seventeenth century (cacao and tobacco) and those which did not.[45] Although chocolate and tobacco both went through early phases as esoteric medicines sold by apothecaries, it did not take long for them to become commodified staples of everyday life in seventeenth-century Eurasia.[46] The same could not be said for New World entheogens.

The degree to which entheogens were envisioned as uncategorizable, foreign substances rather than as approachable foodstuffs is evident in the earliest European accounts of ayahuasca, a preparation of Amazonian plants which contains the potent hallucinogen dimethyltryptamine (DMT). In 1681, the Spanish Jesuit Juan Lucero described a Xibaro healer whom he called an 'elder sorcerer'. This man lived in a special house where, by Lucero's account, he conducted 'continual invocations, orations and prayers consecrated to the devil'.[47] This included 'drinking the juice of various herbs, whose natural effect is to intoxicate a man with such giddiness in the head that he falls to the

[43] Emma Spary, 'All the world's a stage: opium and the domestication of otherness in France around 1700', unpublished paper delivered at the 'Intoxicants and empire *c*. 1600–1800' conference, London, 17 April 2017.

[44] James I, *A counterblaste to tobacco* (London, 1604), pp. 1–2. See also Wheeler Thackston, trans., *The Jahangirnama: memoirs of Jahangir, emperor of India* (Washington, DC, 1999), p. 217.

[45] Sidney W. Mintz, *Sweetness and power: the place of sugar in modern history* (New York, NY, 1986).

[46] On diet as a factor in the Columbian Exchange, see Rebecca Earle, *The body of the conquistador: food, race and the colonial experience in Spanish America, 1492–1700* (Cambridge, 2012).

[47] Juan Lorenzo Lucero SJ to the Duque de la Palata, Viceroy of Peru, 29 September 1682, transcribed and printed in Appendix 6 of 'Noticias auténticas del famoso rio Marañon ... (conclusión)', *Boletín de la Sociedad Geográfica de Madrid*, 33 (1892), pp. 24–44, at pp. 26–7.

floor'.[48] Lucero was probably referring to ayahuasca or datura, since Pablo Maroni, a later Jesuit missionary in the same Amazonian region, wrote that 'in order to perform divination, some drink the juice of a white datura blossom with the figure of a bell, while others drink a vine vulgarly called *ayahuasca*'. Both Lucero and Maroni emphasized the multifaceted roles of these Amazonian entheogens, which could heal, poison, or serve as tools for 'those who want to prophesy' – an activity that, for Maroni and his peers, was inextricable from the influence of Satan.

Maroni's account of ayahuasca users in the deep Amazon fixated on the uncanny state of sensory derangement that the drug was said to produce, which supposedly involved 'being deprived of the senses from mouth to bottom … for even two or three days'. Maroni connected this loss of control over one's mind and body to a larger complex of magical practices, noting that 'the diviners' attribute 'all deaths that commonly happen to the effects of some spell'.[49] Another eighteenth-century Jesuit in the Amazon, Padre Veigl, described '*Hayac hausca*' as a profoundly disorienting potion which 'makes one utterly powerless, sweeping one away into a prolonged reverie in which they dream wonderful dreams, which they do not seek for, seeing them in visions'. Veigl's extensive and comparatively neutral accounting of the drug's effects offers a hint that he may have tried it himself – his description of 'wonderful dreams' and 'reverie' is notably ambiguous. Nevertheless, he still associated ayahuasca with a profound, destabilizing, and unfamiliar form of intoxication, something more akin to a poison than to a medicine or food.[50]

In many respects, these eighteenth-century missionaries were simply acting out a drama that had already been staged more than a century earlier in post-conquest Mexico. As noted above, one of the earliest references to peyote (attributed to a hermit named Gregorio Lopez, who was active in 1590s Mexico City) recommended the use of 'peyote molido con pimento' ('peyote ground with pepper') for pains in the neck.[51] The initial interest in the plant was as a potential medicine, not as a dangerous intoxicant. In the 1570s, the physician and naturalist Francisco Hernández identified two varieties of peyote (*peyotl*) in use among the Chichemeca peoples north of the Valley of Mexico; both types, he wrote, had medical value in addition to divinatory uses.[52] Although Hernández knew that peyote was psychoactive, he focused more on its practical uses as a medicine and divinatory tool than on its intoxicating effects:

> The plant, when pounded, is said to be a cure for pains of the joints. It is said to have miraculous properties (if what is commonly reported among the Indians can be believed) and they that eat it are able to divine and

[48] Ibid., p. 27.

[49] Maroni, 'Capítulo tercero', pp. 54–5.

[50] Christoph Gottlieb von Murr, 'Provinciae Maynensis in America Meridionali, ad annum usque 1768', *Journal zur Kunstgeschichte und zur allgemeinen Litteratur*, 17 (1789), pp. 1–180, at p. 55.

[51] Losa, *Vida de Gregorio Lopez*, p. 367.

[52] Francisco Hernández, ch. 25, 'De peyotl Zacatensi, seu radice molli', in *De historia plantarum Novae Hispaniae*, vol. 3 (Madrid, 1790), p. 71. See also Varey and Chabrán, eds., *Mexican treasury*, p. 125.

> predict things: for instance, whether, on the following day, the enemy will make a rush at them, or whether it is a good idea to stay put, or whether someone has stolen from them some object or other, and other things of this type, which the Chichimeca believe is to be learned from this medicine.[53]

Likewise, in his discussion of a related entheogen, *ololiuhqui* (the seeds of a morning glory species, *Ipomoea corymbosa*, which contain a compound related to LSD), Hernández connected the drug to 'wisdom and prudence, and therefore, the plant is called wise (*sapientum*)'.[54] It is notable that for a relatively early commentator like Hernández – who based his account on travels conducted between 1570 and 1577 – the divinatory or sacramental functions of entheogens did not necessarily outweigh their potential as valuable medicines.

However, other early Spanish chroniclers who wrote about peyote, psilocybin, or *ololiuhqui* did draw direct links with Satan, and it was their interpretation that ultimately won out. Toribio de Benavente Motolinia, one of the earliest Franciscan missionaries in New Spain, described the effects of psilocybin mushrooms used by the Aztecs and Chichimeca as 'a most cruel manner of inebriation' that allowed some Mexica he was observing to

> see a thousand visions, especially snakes, and as they were all out of their senses, it seemed to them that worms were eating them alive, and thus half-raging they charged out of the house, desiring that someone might kill them ... These mushrooms are called in their language *Teonanacatl*, which can be translated as 'Meat of the Gods', or rather of the devil which they worship.[55]

A number of Inquisition trials over the course of the seventeenth century centred around charges of superstition and witchcraft related to the use of peyote or psilocybin. By the summer of 1620, an Inquisitorial edict had been publicly posted throughout the cities of New Spain which officially banned the use of 'peyote and other herbs ... [that] cause images, fantasies, and representations ... on which divinations are based'.[56] For decades after this ban, however, Inquisitors in Mexico City continued to prosecute healers, usually Indigenous women, for the continued use of entheogens in 'prophecy' or 'witchcraft', a paper trail which makes it clear that the suppression of entheogens in New Spain, as with the various contemporaneous efforts to suppress tobacco in other parts of the world, was far from complete.[57] In a tacit

[53] Hernández, *Historia plantarum*, p. 71.

[54] Francisco Hernández, *Nova plantarum, animalium et mineralium Mexicanorum historia* (Rome, 1651), p. 8.

[55] Toribio de Benavente Motolinia, *Historia de los indios de Nueva España*, in Joaquin Garcia Icazbalceta, ed., *Collection de documentos para la historia da Mexico* (Mexico City, 1858), p. 23.

[56] 'Nos los inquisidores, contra la heretica pravedad ... por quanto el uso de la yerbo o raiz llamada Peyote', broadsheet dated 19 June 1620, John Carter Brown Library, Providence, RI. For a translation, see 'Edict of faith concerning the illicit use of peyote', in John F. Chuchiak IV, ed., *The Inquisition in New Spain, 1536–1820: a documentary history* (Baltimore, MD, 2012), pp. 113–14.

[57] For examples, see Chuchiak, *Inquisition in New Spain*, pp. 308–17 and p. 377, n. 10.

admission of the failure of the 1620 ban, an edict with similar wording was issued and posted once again in 1692.[58]

The careful wording of these bans demonstrates the continued ambiguity of entheogens in New Spain throughout the colonial period. As David Tavárez has noted, Catholic authorities in the New World 'could be tolerant about the ritual usage of certain plants by native specialists and did not espouse the wholesale demonization of such practices'.[59] Instead of blanket condemnations, they drew careful divisions between the medical use of novel drugs (including entheogens) and their 'abuse' in the context of either non-Christian spirituality or a slate of misdeeds that early modern European medical professionals would find more familiar, such as over-charging, counterfeiting, and general quackery. For instance, a 1619 letter sent from the Inquisition of New Spain to the Supreme Council of the Inquisition in Madrid during the lead-up to the original ban on peyote acknowledged that peyote was 'medicinal for the Indians, though strong' and described the drug more in terms of a substance which *could* be abused, rather than as something inherently demonic. The wording left room for a repurposing of peyote and related drugs by medical authorities: '*Taking it in the way that the Indians use it*, [peyote] alienates the senses and creates representations of visions and ghosts, from which the idolatrous Indians take the opportunity – or the Devil inspires them – to foretell thefts, hidden events, and other future things.'[60] The same letter added that the 'abuse' (*abuso*) of the drug was common among 'all kinds of people: Spaniards, blacks, mestizos, and mulattos ... nothing is more used and frequent here'. Finally, the letter also clarified that the peyote being 'abused' in this objectionable way was being prepared in a powdered form 'taken with wine or other liquors' (*toman el peyote hecho polvo, con vino u otros licores*).[61]

It is worth remembering, in this regard, that early modern Catholic authorities and Nahua elders would probably have agreed in their condemnation of the 'abuse' of peyote and its unrestricted use alongside alcoholic beverages. For the Nahuas and other Mesoamerican societies, entheogens were woven through society in extraordinarily complex ways, appearing not just as medicines or recreational drugs, but as key elements in religious practice, the demonstration of political power, medical diagnosis, and moral reasoning. The *tícitl*, or physician/healer of the Aztecs, was a figure whose knowledge concerned 'both the supernatural and physical worlds', including a sub-category of healer – the *paini*, 'one who drinks medicine' – who specialized in diagnosing illnesses via the use of entheogens and advising patients on when and 'for

[58] 'Edicto contra el uso del peyote' (1692), transcribed in Enrique Flores and Mariana Masera, eds., *Relatos populares de la Inquisición novohispana. Rito, magia y otras 'supersticiones'* (Mexico City, 2010), pp. 293–4.

[59] Tavárez, *Invisible war*, pp. 94–5.

[60] Transcribed in Gustav Henningsen, 'Evangelización negra: difusión de la magia europea por la América colonial', *Revista de la Inquisición*, 3 (1994), pp. 11–28, at pp. 22–3, emphasis added. See also Marta López Pereda, 'Superstición, brujería y esclavitud en una sociedad colonial: Nueva España a mediados del siglo XVIII', (Master's thesis, Universidad de Cantabria, 2014), pp. 26–7.

[61] Henningsen, 'Evangelización negra', p. 23.

what purpose' they should use such substances themselves.[62] Outside this prescribed medical context, however, Nahuas could be almost as moralistic about the use of entheogens as Spanish Inquisitors were. What Sherry Fields calls a concern for 'bodily equilibrium' and an 'ideal of moderation' in Aztec medicine manifested itself in strictures against becoming 'besotted' or 'deranged' due to the consumption of alcoholic beverages or other intoxicants.[63]

Such beliefs were not dissimilar from those of the Spanish chronicler Bernardino de Sahagún, who disapproved of entheogen use among the Chichimeca because he believed it produced an unbecoming drunkenness, 'in the same fashion as the evil mushrooms which are called *nanacatl* and which also make one drunk like wine'.[64] Elsewhere, Sahagún wrote that peyote was used 'to see frightful or laughable visions; during this time they are drunk for two or three days'.[65] Lacking a viable correlate to the hallucinogenic effects of drugs like peyote and psilocybin, Sahagún had no words to describe the mental state of the Chichimeca other than 'drunk' (*borracho*). Here, too, an ambiguity lay at the heart of his condemnation. He did not imply that the 'visions' produced by the drug were a *result* of the state of drunkenness; they were simply another effect that *accompanied* it. For early commentators like Sahagún or Francisco Hernández, and for the Inquisitors involved in the 1620 ban, it seems to have been difficult to assimilate the multiple roles of these strange substances, which were consumed like foods, produced drunkenness like wine, healed specific ailments like medicines, offered practical knowledge in the form of visions, and potentially also served as tools of Satan.

V

To summarize: entheogens were *sometimes* associated with Satan in the early modern Americas. Yet other European sources lauded their medical virtues and practical utility, using descriptors like 'wonderful' and 'wise'. In still other accounts, they were said to produce profound 'drunkenness', a 'laughable' state that might have been the subject of moralistic condemnation, but which was far from unfamiliar to many early modern Europeans (to put it mildly). Given this remarkably diverse range of responses, it seems unlikely that cultural bias alone could explain why entheogens failed to be integrated into European consumption patterns, while other foreign drugs of the period were.

When assessing cultural or religious objections to the use of a novel intoxicant, it is important to remember the role of contingency and chance. Despite their inclination to see the devil lurking in the 'psychedelic Eden' of the

[62] Sherry Fields, *Pestilence and headcolds: encountering illness in colonial Mexico* (New York, NY, 2008), pp. 12, 16.

[63] Ibid., p. 28, citing Bernardino de Sahagún, *Florentine codex* (*Historia general de las cosas de Nueva España*), book 6, fos. 122v–123r.

[64] Sahagún, *Florentine codex*, book 10, ch. 29, fo. 2. *Nanacatl* or *teonanacatl* refers to the Aztec hallucinogenic mushrooms of the genus *Psilocybin*. See Gastón Guzmán, 'Hallucinogenic mushrooms in Mexico: an overview', *Economic Botany*, 62 (2008), pp. 404–12.

[65] Sahagún, *Florentine codex*, book 11, ch. 7.

tropical Americas, Iberian missionaries were not necessarily opposed to novel intoxicants as a category. Indeed, Portuguese and Spanish missionaries were sometimes accused of being *too* willing to embrace exotic drugs, such as the snakestones from Mombasa in East Africa that Jesuits in Rome held up as quasi-miraculous cures for poison; the indigenous Peruvian fever cure that came to be known known as 'Jesuit's bark'; or the novel laudanum recipes, like Sydenham's drops, that abound in the pharmacopoeia housed in the Society of Jesus archives.[66]

Deciding whether a drug was transplantable depended on a long chain of largely arbitrary factors, hinging not just on inherent biological characteristics of a substance or cultural bias, but also on a larger assemblage of beliefs, techniques, and material contexts. Not all of these pushed in the same direction. Indeed, the Portuguese physician Duarte Madeira Arrais went so far as to speculate that even the Tree of Life within the Garden of Eden had been a type of tropical intoxicant. Arrais's inquiry into the physical nature of the Edenic tree concluded that it functioned both 'as Aliment, and as Medicament'.[67] He believed that its medical virtues were connected both to its anti-poison ('alexipharmic') properties, and to its ability to 'stupefy the Sense … as Narcotick Medicines do'.[68] A 1720s Portuguese cavalry officer stationed in Angola and the Congo named Francisco de Buytrago may well have been influenced by this speculation to declare that he had discovered a 'miraculous' new drug. Buytrago claimed that an Angolan tree which he called the *Arvore da Vida* (Tree of Life) had the ability to expel demons from *endemoninhados* (possessed people) and alleviate hallucinations. Although he depicted this tree bark as a kind of anti-intoxicant, he admitted that it, too, had the ability to provoke 'visions' and 'transport' those who consumed it.[69]

Yet Buytrago's African tree bark failed to make its mark in European emporia for much the same reason as New World entheogens: there was a problem of transplantation. European consumers' embrace of New World drugs like tobacco or chocolate and their rejection of peyote and psilocybin depended on more than the biological effects of drugs or on religious bias. It also involved the differential 'transplantability' of the assemblages surrounding the use of a specific drug in a specific space. Pre-Columbian entheogen use was just one part of a larger complex of beliefs and practices relating to the assertion of political and spiritual power. Among the Aztecs, for instance, psilocybin mushrooms appear to have often been consumed

[66] 'Collecção de varias receitas', (1764), Archivum Romanum Societatis Iesu, Rome, Opp. Nn. 17.

[67] Duarte Madeira Arrais, *Novae philosophiae et medicinae de qualitatibus occultis* (Lisbon, 1650). Quotes are from an English translation of an excerpt from this book which appeared under the title *Arbor vitae: or, a physical account of the tree of life in the Garden of Eden* (London, 1683), p. 52.

[68] Arrais, *Arbor vitae*, pp. 51, 74. Arrais later wrote of '*Opium* and other Stupefying Medicines', suggesting that this was the particular 'Narcotick' he had in mind for his comparison (p. 93).

[69] Francisco de Buytrago, 'Arvore da Vida, e thezouro descuberto da arvore irmãa da que se fez a cruz da nossa redempção' ('The tree of life, and the treasure discovered from the sister tree from which was made the cross of our redemption') (1731), Biblioteca Nacional de Portugal, Lisbon, codigo 13115, fr. 437. See also Chelsea Barry, 'Poisoned relations: medicine, sorcery, and poison trials in the contested Atlantic, 1680–1850' (Ph.D. thesis, Georgetown, 2019), ch. 1.

alongside chocolate in ritualized feasts that involved a highly codified performance of religious authority.[70] Inquisition trials of peyote users contain glimpses of this larger assemblage of practices, beliefs, and drugs – for instance by linking entheogen use to a larger assertion of spiritual power and communal identity via identification with Aztec gods such as Tezcatlipoca.[71] As Serge Gruzinski puts it, New Spain was a 'hallucinated society' in which entheogen usage helped both to construct a shared precolonial past and to structure the emerging social formations of a mestizo present.[72]

Additionally, entheogen usage in the indigenous Americas took place in a distinctive spatial and material context that was extremely difficult to replicate, reflected in everything from temple and palace architecture to the form of the vessels used to consume and prepare sacramental drugs. Such practices were not only embedded in a deep and well-remembered communal history but, in some cases, the drugs were quite literally *foundational* to these histories.[73] In the monumental architecture of the Chavín culture, in present-day Peru, archaeologists have documented a fascinatingly elaborate series of chambers and corridors, including frequent iconographic depictions of a hallucinogenic cactus, the San Pedro, which contains the same compound as peyote (mescaline).[74] This 'psychotropic complex', it has been argued, was built to facilitate the ritual usage of the San Pedro among religious and political elites via the manipulation of spatial and acoustic environments to increase the cactus's sensory effects.[75] The result was what one scholar has called a 'highly planned ritual context' for the 'manipulation of the human mind through landscape, architecture, images, sound, light, and the use of psychoactive drugs'.[76] Intricate assemblages such as these – involving not only drug usage, but communal memory, material culture, and the built environment – were impossible to duplicate in new settings.

By contrast, the chocolate or tobacco assemblages were relatively easy to transplant, in part because a characteristic features of these drugs was their 'foodiness', expressed in their role as social accompaniments to dining and sociability and in the early modern practice of mixing both tobacco and chocolate with universally desired sweeteners like sugar and

[70] Guzmán, 'Hallucinogenic mushrooms'.

[71] Serge Gruzinski, *Man-gods in the Mexican highlands: Indian power and colonial society, 1520–1800*, trans. E. Corrigan (Redwood City, CA, 1988), p. 38.

[72] Serge Gruzinski, *Images at war: Mexico from Columbus to Blade Runner (1492–2019)*, trans. H. Maclean (Durham, NC, 2001), p. 171.

[73] Alexandre Varella, 'Os psicodélicos nas formações estatais indígenas e a hipótese do complexo de drogas da América xamânica' ('Psychedelics in the formation of Indigenous states and the drug complex hypothesis in shamanic America'), *Revista Ingesta*, 1 (2019), pp. 211–31.

[74] Richard Burger, 'What kind of hallucinogenic snuff was used at Chavín de Huántar? An iconographic identification', *Ñawpa Pacha: Journal of Andean Archaeology*, 31 (2011), pp. 123–40.

[75] Miriam Kolar, 'Tuned to the senses: an archaeoacoustic perspective on ancient Chavín', *The Appendix: A Journal of Narrative and Experimental History*, 1 (2013), http://theappendix.net/issues/2013/7/tuned-to-the-senses-an-archaeoacoustic-perspective-on-ancient-chavin; Mike Jay, *Mescaline: a global history of the first psychedelic* (New Haven, CT, 2019), ch. 1.

[76] John W. Rick, 'The evolution of authority and power at Chavín de Huántar, Peru', *Archaeological Papers of the American Anthropological Association*, 14 (2004), pp. 71–89.

molasses.[77] The peyote, psilocybin, or ayahuasca assemblages relied upon closely guarded knowledge maintained by specialized professionals. They depended upon a collective social memory and a pre-existing built environment, and they projected a grouping of *ideas* – about prophecy, cosmological order, and spiritual power – that were far less transferrable than the relatively universal concerns (around sociability, luxury consumption, and diet) associated with tobacco and chocolate. Throughout its traditional zone of cultivation, from the Pacific Northwest to Chile and Brazil, tobacco use was associated with the welcoming of guests. It served as a tool that smoothed social interactions, and as such it was relatively familiar to any society that had traditions involving reciprocal offers of drugs or foods as tokens of sociability (which is to say, virtually all of them).[78] Speaking more speculatively, perhaps entheogen usage was more deeply embedded within what we could call an epistemologically closed setting, operating at a society's inward-facing centre, not along its outward-facing edges.

But if entheogens rarely made their way into the circles of European elites or the markets of long-distance merchants, this does not mean that their use ever went away. A vernacular culture of intoxication ran in parallel to the elite worlds of global drug merchants, physicians, and natural philosophers. Early modern distinctions between which medicines were transplantable and which were not would later fossilize into the legal boundaries dividing acceptable (globalized) drugs from illicit (regional) ones.

In the nineteenth century, attempts to chemically 'purify' regional drugs like peyote or coca of their indigenous context resulted in the creation of far more potent artificial substances, like mescaline and cocaine. Scientific labour was brought to bear on the task of improving the potency of these pharmacological products, rather than on exploring the possibilities of entheogens which had remained embedded in localized and continuous cultures of use. It is an irony that in some ways can be seen as a template for the larger history of drugs and pharmacy – a history of cultural dislocations, of miscommunication, and of well-meaning efforts which produce consequences that could never have been predicted.

Today, entheogens that were not fully 'transplanted' during an earlier period of globalization have been either pushed into the realm of the illicit or simplistically relabelled as 'traditional medicines'. Other substances, such as tobacco, which did become successful early modern transplants were refigured as familiar global commodities. At its heart, this distinction is founded on an illusion: *all* naturally occurring intoxicants with a long record of human use are, on some level, 'traditional', just as all substances which are harvested, prepared, and packaged for sale or exchange are, at some level, commodified. But haphazard historical distinctions have long since hardened into categorical

[77] Tobacco soaked in molasses became an essential commodity in the Atlantic slave trade by the end of the seventeenth century: see Jerome S. Handler, 'The middle passage and the material culture of captive Africans', *Slavery and Abolition*, 30 (2009), pp. 1–26.

[78] On tobacco's rapid diffusion in Asia, see Carol Benedict, *Golden silk smoke: a history of tobacco in China, 1550–2010* (Berkeley, CA, 2011).

differences. The legacies of early modern transplantations – and their failures – continue to shape how intoxication is experienced today.

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