Plague and Intoxicants in the Baltic and North Seas During the Long Seventeenth-Century[1]

Phil Withington (Sheffield), Gabrielle Robiliard (Oldenburg), Karin Sennefelt (Stockholm), Stephen Snelders (Utrecht)

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Abstract: The article argues that medical responses to plague contributed to the 'psychoactive revolution' during the long seventeenth century. Focusing on four metropoles in the Baltic and North Sea region, it shows that the commodification of sugar, opiates, and tobacco during the last century of the Second Great Pandemic correlates both with outbreaks of plague in Amsterdam, Hamburg, London, and Stockholm and with the intraregional prescription of these intoxicants in popular and authorised plague physic. In so doing, it argues for the importance of household consumption practices in driving the psychoactive revolution and points to the importance of women and well as men in the popularisation of intoxicants. By tracing the popularisation of sugar, tobacco and opium from c. 1600 and using plague physic as an example of medical prescription more generally it delineates an under-appreciated set of consumer motives informing household consumption practices: not least the need to allay fear, pain, and bodily and mental disorder. The article concludes by introducing the concept of 'accustomisation' as the way in

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which contemporary observers explained how reactive consumption in the face of epidemics could become habitual, recreational, and possibly involuntary consumption over time.

Fernand Braudel long ago noted how 'sugar, coffee, tea and alcohol have had a long-term and very important influence on history' and 'the lightning-swift manner in which tobacco in particular circled the globe and conquered the world'.[1] Numerous studies have subsequently shown that the sixteenth to eighteenth centuries was an important period for the kind of commodity identified by Braudel: that is, psychoactive and potentially addictive comestibles which we term here intoxicants. Over the course of the early modern period intoxicants like tobacco, cacao, coffee and tea entered European diets for the first time, becoming commodities of mass consumption in the process; previously exotic intoxicants such as sugar, opium, and distilled spirits likewise transformed from luxury or restricted substances into more popular and commercialised products; and even fermented staples like wine and beer fuelled large capitalist undertakings. Part and parcel of these changes was that global networks of production and supply were established across the Atlantic and Indian Oceans; European alcohols were exported to colonies, trading posts, and new indigenous markets; and rarified or unknown intoxicants at first trickled and then flowed into European ports and metropoles.[2] Indeed, so significant were these developments that they have been persuasively dubbed a 'psychoactive revolution'.[3]

This article starts with a simple question: what, if any, were the links between the onset of this psychoactive revolution and developments in epidemical medicine over the course of the long seventeenth century? The question is not as tangential as it might at first sound.

Although often dismissed by historians as useless and tokenistic, physic nevertheless remained an important component of contemporary responses to plague in the hundred or so years after 1600. More importantly, and as this article argues, it underwent significant material changes which raise interesting questions about the consumption priorities and practices of male and female householders facing the threat or reality of pestilence on a recurring basis. In the meantime, many northwestern Europeans experienced a transformation in their dietary options as intoxicants became more popularly available for the first time. And it so happens that some of the key developments in the *materia medica* of European plague medicine involved precisely those intoxicants which, in a matter of decades, were conquering the globe: most notably tobacco, sugar, and opium.

The premise of what follows is that this conjunction between physic, intoxicants, and consumerism is worth exploring. Two of the three new intoxicants which became prominent in combatting pestilence after 1600 – tobacco and sugar – are likewise integral to perhaps the most influential account of the seventeenth and eighteenth centuries.[4] According to Jan de Vries, not only did increasing numbers of householders decide to expend more of their income on (among other things) newly available intoxicants like sugar, tobacco, tea, coffee, and distilled liquors in the decades after 1650; they were willing to work more hours and in more diverse kinds of occupations to do so. That is, by encouraging household consumers to embrace new economic markets and market-orientated behaviour, intoxicants helped precipitate an 'industrious revolution' which, according to de Vries, was quite as significant in driving pre-modern economic change as colonial, commercial, technological, or financial developments.[5]

Our concern here is not with the perennial debate over whether it was consumer behaviour or control over the means of production and supply which best explain Europe's comparative economic success, or 'great divergence', by the end of the eighteenth century.[6] (Though as Braudel also noted, socio-economic processes at once 'external' and 'internal' to early modern Europe were clearly symbiotic – and reinforcing – rather than a zero-sum game).[7] Rather, what follows critically engages with issues raised by de Vries' theory of household economics to provide what we hope is a more nuanced and historicised understanding of early modern trends in European consumption. We do so by adopting a model of *social practices* that is more attuned to historical meanings, beliefs, and values than that borrowed from economists by de Vries.[8] This allows us to explore and analyse the contemporaneous pressures and motivations driving consumption practices and to foreground the question of *why* men and women might have consumed what they did over the course of the long seventeenth century. Doing so makes it clear that consumption practices aimed at preventing or remedying infection from pestilence – which were themselves part of a more general 'medical revolution' – provided at least one set of reasons for consuming sugar, opium, and tobacco and help to explain why the final century of the Second Great Pandemic in northwestern Europe also experienced the early stages of the psychoactive revolution.[9]

Periodisation and geography are important to our discussion and need to be highlighted from the start. For de Vries, the industrious revolution is one of several long-term processes feeding into the evolutionary (as opposed to momentous) history of the 'industrial revolution' at the end of the eighteenth century. The quotidian uptake of sugar, tobacco, coffee, tea, and distilled spirits was a prominent reason why male and female householders

reorganised their working routines and consumption practices over the course of the long eighteenth century.[10] However, one premise of this article is that while tea and coffee were certainly commodities of the eighteenth century, the commodification of tobacco and sugar began significantly earlier than 1700 – or even 1650 – across certain parts of north-western Europe.

This insight is important in three respects. First, distinguishing the initial uptake of tobacco and sugar in the seventeenth century from the subsequent assimilation of coffee and tea in the eighteenth century necessarily raises the possibility of alternative and more mutable factors informing their consumption. It also opens a window on the popularisation of opium, an 'exotic' intoxicant which is completely absent from de Vries' story of industriousness, but which established itself in the *materia medica* of north-west Europeans at around the same time as sugar and tobacco.

Second, the initial popularization of sugar, tobacco, and opium after 1600 encourages attention not merely on the evolutionary nature (or not) of industrialisation, but also on another major geohistorical process identified by Braudel: the shift of Europe's economic centre of gravity, *circa* 1600, from the Mediterranean Sea to the North Atlantic and Baltic and North Seas.[11] Sugar and tobacco proved integral to this reconfiguration of economic power within Europe, and what follows accordingly focuses on four metropoles which, as major ports and/or urban centres, were crucial to turning the North Sea into what David Ormrod describes as a dynamic and 'complete regional system in itself, with its own peripheral and semi-peripheral areas in the Baltic and eastern Europe'.[12] These were Amsterdam, Hamburg, London and Stockholm. This is not to suggest, of course, that the

region and its cities were somehow hermeneutically sealed from other parts of Europe or, indeed, their own rural hinterlands. On the contrary, it is precisely because of their roles as hubs of communication and mobility in many different networks – provincial, national, and global – that the metropoles play a significant role in this story.

Third, by focusing on these metropoles in the decades after 1600, pestilence becomes an obvious context for thinking about the popularisation of sugar, tobacco and opium. As is well known, plague affected all four cities several times between the 1600 and 1720; was physiologically indiscriminate (although social elites were able to distance themselves from infection easier than others); elicited major municipal and state interventions in both public and domestic life; and was a recurring biological and psychological threat even in the absence of physical outbreaks. Moreover, plague physic was by no means unusual in terms of prescribing intoxicants: for the most part, epidemical crises encouraged the amplification and adaptation of more general medical practices and tendencies. Somewhat ironically, therefore, the sheer scale and horror of pestilence makes it one of the best ways to explore how medical and dietary advice – conflated by contemporaries as dietetics – affected everyday practices and routines.

What follows accordingly suggests that during the long seventeenth century practices of epidemical physic were important in aiding and abetting the commodification of opiates, tobacco, and sugar within four metropoles of the Baltic and North Sea region. This reflected the close correlation between the transnational movement of medical knowledge, intoxicants, and the bacteria *Yersinia Pestis*. Moreover, because physic was practised primarily in the household, it also points to the significance of domestic spaces and female

agency in driving the initial stages of Europe's psychoactive revolution. This in turn raises the very real prospect that household consumption in the name of physic was one route by which men and women became familiar, habituated, and subsequently dependent on intoxicants in ways that belied their initial and legitimate use as prescribed medicines. Plague physic accordingly serves as a powerful case study for the more general spectre of addiction through prescription, or what contemporaries would most likely have understood as *accustomisation*.[13] In this way, it helps to explain how psychoactive substances not only became embedded in the dietary regimes of individual households and their members but also came to lubricate new social practices and habits inter-generationally.

The argument is made in three stages. The first section engages with the praxeological undercarriage of de Vries' theory of industriousness and points to plague physic as an important but neglected kind of household consumption practice during the long seventeenth century. The second section outlines the connections between the threat or experience of plague, the consumption of intoxicants, and the contrasting trajectories of sugar, opiates, and tobacco within printed medical discourse in the Baltic and North Sea region. The trends it identifies and their implications for household consumption practices were by no means experienced simultaneously or consistently across the area. Consumption in Stockholm and Hamburg – with their sumptuary laws, highly centralised state, traditional social structure, and extra distance from global trade routes – contrasted with the more precocious and innovative consumption patterns in Amsterdam and London, especially before the eighteenth century. With local particularities in mind, it is possible to discern changes in the region's intoxicant economy and medical practices that are indicative of closer interconnections than historians have appreciated. The final section considers some

of the intriguing and potentially far-reaching ramifications of these developments. If intoxicants really did play a prominent and increasing role in plague physic, then it follows that they were consumed by women as well as men in domestic as well as public spaces. This intimates a largely neglected set of motivations – and potential consumers – helping to drive the psychoactive revolution; it points to households as spaces in which intoxicants might be taken excessively and in ways that risked accustomisation; and it raises the prospect that the opioid crises of the modern era have longer genealogies than has been realised.

II Plague physic and household consumption

De Vries' theory of early modern consumption is based on the important insight that the household, as the primary unit of social organization in the pre-modern world, was also the primary institution of consumption: in particular, that it was here that decisions were made about what was to be consumed (and how and by whom) and where. De Vries accordingly drew on the 'new household economics' to outline in schematic terms the stages involved in increasing household consumption. Central to this schema were 'Z-commodities', or what social scientists would term (in slightly more accessible language) a 'practice': i.e., 'a routinized type of behaviour' that 'endures between and across specific moments of enactment'.[14] 'Z-commodities' were the bundles of goods that are 'ultimately consumed' after the selection, acquisition, and processing of constituent materials and which were the focus of 'preferences (or tastes)' among household members: for example, as the ingredients and material culture of meals (such as 'breakfast') or in the assemblages of furnishings and utensils that make up a typical room (such as a 'study' or 'parlour'). Over the course of the long eighteenth century, male and female householders acquired a taste for

consumption practices requiring 'more purchased goods' and so, to afford them, more 'household labour'.[15] De Vries argued that informing these choices was a tendency for innovative consumerism that he first detects in the mid-seventeenth-century Dutch Republic and which was disseminated and theorised across north-western Europe thereafter.[16] At root, this tendency involved the valorisation of Z-commodities that combined new or previously unavailable 'little luxuries' by middling and even lower-class householders in the name of 'comfort' and other kinds of material and emotional gratification and pleasure. This contrasted with the 'old luxury' of conspicuous consumption performed by medieval elites.[17] It was this emergent symbiosis between new Z-commodities, tastes, markets, and labour that drove, in effect, the industrious revolution.

One of the Z-commodities epitomising this process was the decision by north-western Europeans to combine Asian tea with Atlantic sugar. As Braudel no doubt would have done before him, de Vries admires the rendering of the apocryphal moment of Z-commodification by Sidney Mintz: how 'the first sweetened cup of hot tea to be drunk by an English worker was a significant historical event, because it prefigured the transformation of an entire society, a total remaking of its economic and social basis.'[18] However, de Vries emphasises that he 'seeks to contextualise and thereby endogenize the process of consumer capital formation – to treat consumption innovations as flowing from accumulated experience and knowledge rather than appearing as an exogenously determined event'.[19] To this end he notes that the practice of combining sugar, tea, and coffee probably evolved in the last two decades of the seventeenth-century (though Samuel Pepys records drinking sugared coffee as a household guest of Lady Carteret in London as early as 1664) and became integral to

two of the most important 'consumption clusters' of the eighteenth and nineteenth centuries: morning breakfast and afternoon tea.[20]

In contrast to the sweetened caffeine first drunk by an apocryphal English worker at some point during the eighteenth century, the practices epitomising the story of household consumption told here were published by the influential Dutch surgeon, Ysbrand van Diemerbroeck, in his 1646 treatise on how to combat plague.[21] Based on his experiences treating the pestilence in Nijmegen in the 1630s, the book consisted of twenty-seven 'case histories' in which van Diemerbroeck recalled how he healed eleven patients, lost eighteen, and (as told in case history seventeen) repeatedly saved himself from morbid infection.

The seventeenth case history is a vivid description of a household consumption practice. Van Diemerbroeck recalled that 'When Natharius Stuaet, a Scrivener, living near to the Strait Gate, and next door to the Dancing-School, was sick of the Plague, with a Looseness: I was sent for to see him'. The physician explained that 'as soon as I came into his Chamber, I presently smelt a mighty stink, with which I was much moved: after a short time that I was with him, going out of his House again, forthwith I was very sick, much pained at Heart, so that I questioned not but that I had the Sickness'.[22] Van Diemerbroeck's immediate response was to return to his household to self-medicate: '(laying aside all business) I went home, and took six Pipes of Tobacco, by which time all the former symptoms were gone, and I was as well as before: then going abroad (to see my Patients) I took one Drachm of Treacle, and then was presently well.'[23] On another occasions, van Diemerbroeck recalled that 'on a time I visited a Baker and his Wife, who lay ill of a Pestilential Looseness … I was much altered by that great stink'. Resorting 'as I used to do

[…] to the taking of Tobacco' van Diemerbroeck was 'overwhelmed with so much sleep and pain, that (whether I would or no)' he took an 'Antidote' to induce sleep. Later he was 'wakened to visit some sick Men' and 'Vomited with great pain'. Eventually, 'I arose, leaning upon my servant's shoulder, I came to the Fire, then I took Tobacco' and 'when I had taken two or three Pipes, the giddiness of my Head vanished, but troubled a little at heart: then taking heart, fearing nothing, took half a Drachm of Treacle, and a good Draught of Burnt Wine, with some Cinnamon and Nutmeg, and then I went into the Air'. Now fortified and fearless, van Diemerbroeck remembered that 'as I was walking [I] sweat very much, and so I continued till ten of the Clock at night, and then (without any pain at all) returned whom as well as before, and was hungry enough at my Supper, at the close of which I took a Pipe of Tobacco'.[24]

What van Diemerbroeck describes, then, are Z-commodities and household consumption practices that have been ignored not only by de Vries and other historians of early modern consumerism, but also by most historians of psychoactive substances.[25] An important exception is Christine Fabbri's work on the opiate theriac (known colloquially as treacle), although this focuses on the pre-1600 period and the therapeutic value of the drug.[26] To borrow the terminology of praxeology, van Diemerbroeck illuminates in unusual detail the *materials* (the 'things, technologies, tangible physical entities, and the stuff of which objects are made'), the *competencies* (the skills, know-how and techniques required to act effectively or appropriately in relation to the practice), and the *meanings* ('including symbolic meanings, ideas, and aspirations') involved in epidemical medicine in general and plague physic in particular.[27] In so doing, he reveals the intersection within the household of tobacco and tobacco pipes, opiates (treacle), wine and spices (and no doubt glasses)

requisite to this physic; a range of skills relating to the successful preparation and imbibing of these substances; an extensive body of knowledge drawn from humoral and experiential medicine; and a set of motivations dominated by sensory disquiet, emotional fear, corporeal pain, and the very real prospect of imminent death.

As a dutiful doctor, van Diemerbroeck's practice was not limited to his own household; nor were the intoxicants he used restricted to tobacco, treacle, and wine. He recorded visiting the homes of twenty men and ten women ranging in the status from maids and street sellers to surgeons and knights.[28] His cures included sudorific drinks to induce sweats; antidotes to draw out poison; apozems (drinks), electuaries (sugary medicines), and bolus (large pills) to consolidate cures; and juleps, cordials, and broths to quench thirst and rebuild strength. Table 1 shows that these remedies were dominated by opiates. Treacle, treacle water, and other opiates like diascordium and mithridate were key ingredients of sudorific drinks, antidotes, cordials, electuaries, and bolus. Sugary ingredients (conserves, confections, syrups, and candies) also predominated, figuring in apozems, electuaries, and juleps, with electuaries both sweet and narcotic. Van Diemerbroeck also used copious amounts of wine and vinegar as medicinal mixes: one of his favourite opiates – treacle water – was a distillate of two ounces of theriac and mithridate combined with three pints of canary wine and a pint and a half of sharp vinegar.[29] Small ale also served as a recuperative drink. This distribution of intoxicants is corroborated by the only systematic study of early modern plague literature to date. Lara Elyse Thorpe found that in recipes printed between 1550 and 1665 in England, opiates increasingly dominated both preservative and remedial medicine over the period, accounting for 35 per cent of the former and a remarkable 70 per cent of the later in the sixty years after 1604. She also

confirmed that sugar and wine were perennial staples and that aqua vitae began to be referenced in certain English remedies after 1603.[30]

Table 1 Intoxicants in the Plague Physic of IJsbrand van Diemerbroeck

	Opiates	Wine	Sugar	Ale	Tobacco
Type of medicine & nos patients prescribed ()	Nos of uses & rank ()	Nos of uses & rank ()	Nos of uses & rank ()	Nos of uses & rank ()	Nos of uses & rank ()
Sudorifics (10)	19 (1)	2 (10=)	1 (15=)		
Antidotes (11)	21 (1)	2 (4=)	3 (3)		
Apozems (2)	3 (2)		5 (1)		
Cordials (2)	4 (1)				
Electuaries (6)	8 (2)		12 (1)		
Juleps (3)		1 (3)	2 (2)	1 (3)	
Boluses (2)	3 (1)		1 (2=)		
Preservatives (2)	1 (3=)	2 (1=)			1 (3=)

For types of medicine: the number in brackets () is the number of patients for whom the kind of treatment was prescribed by van Diemerbroeck.

For intoxicants: the number is the number of recipes in which an intoxicant is used and the figure in brackets ( ) is the ranking of usage out of all drugs in van Diermerbroeck's *materia medica*.

Opiates = treacle, treacle water, diascordium, mithridate; wine = vinegars, burnt white wine, burnt red wine; sugar = conserves, candies, confections, syrups.

Source: IJsbrand (Ysbrand) van Diemerbroeck, *Several Choice Histories of the Medicines, Manner and Method Used in the Cure of the Plague* (London, 1666)

Van Diemerbroeck's case-histories point to a very different kind of early modern household consumption to that delineated by de Vries. Materially, its practices were initially

dominated by opiates, sugar, alcohol, and tobacco rather than coffee, tea, and chocolate; culturally, its rationale and meanings were derived from contemporary medical knowledge, which played a significant role in determining consumer decisions. This knowledge was rooted in three sets of concerns.[31] The first set of concerns involved preservation against contagion. Spatial policing through fumigation and disassociation was one aspect of this; equally important were dietetics and prophylactics. A person's general regimen should be as balanced, cheerful, and moderate as possible. It should also include comestibles that ward against infection. A second set of concerns involved remedial responses that might cure the pestilence or at least alleviate certain symptoms. Curatives tended to be sudorific, as alternative purges such as bloodletting and vomiting came to be regarded as too violent in the case of pestilence; antidotes, that used their own poison to draw out the poison of the infection; analgesics, to relieve chronic pain; ointments and plasters to treat buboes and other skin conditions; and fortifiers to revive spirits and energy.

These linked to a third set of concerns centring on the emotional trauma caused either by the threat or reality of pestilence.[32] In both humoral and chemical medicine, what we would today understand as the psychological state of the person was regarded as a substantive factor in processes of contagion and debilitation. Within the Galenic tradition fear and melancholy, like lack of sleep, disordered the person and could dispose them to infection.[33] Using a different terminology to describe similar ideas, Jan Baptist van Helmont and his followers conceptualised the 'Archeus' as an inner space between the spleen and stomach which regulated a person's natural state and which could be irritated by external phenomena – including fearful images and thoughts as well as dangerous matter – into engendering illness.[34] It was as much the job of physic to prevent the emotional downward

spiral into plague as it was to combat its physiological effects. In the severe outbreak of 1710-11, Stockholm's householders were reminded of the advice of royal physician Andreas Palmcron from 1638: that a person should always "have courage, and if spirits became low, one should take a glass of wine or engage in amusing conversation in order to give strength to the heart.'[35] Hamburg's city physician, Ernst Wilhelm Prangen, explained to its citizens in 1711 that 'Nothing is better for preserving us [from pestilence] than a strong, unwavering and cheerful courage; in contrast nothing is more dangerous than fear, shock and cowardliness'.[36] And when Samuel Pepys saw red crosses on London doors in 1665 he was put 'into an ill conception of myself and my smell, so that I was forced to buy some roll-tobacco to smell to and chew, which took away the apprehension'.[37]

These substances, then, were taken for fear, illness, and pain according to principles determined by contemporary medical theory and experience rather than moral and political economy or, indeed, novelty and status. Moreover, they were most likely consumed domestically rather than publicly and individually rather than in company. For example, in 1665 Thomas Willis recommended the 'vulgar practice of putting Mithridate, or Treacle, or Tar in their Nostrils' to ward against contagion in public – a practice originally recommended by Hamburg's city physician in 1628 to people too poor to avoid leaving their house.[38] The absence of these kinds of practice from the historiography of consumerism and intoxicants is not, perhaps, so surprising: just as first-hand accounts of plague treatments are notoriously rare, so the 'lack of instrumental success' of pre-modern plague physic has meant that, from Daniel Defoe onwards, pandemic historians have tended to neglect it in favour of tracing more impactful social, governmental, and religious responses.[39] According to Keith Thomas, it was alcohol that offered most consolation from the terrors of pestilence

and the helplessness of physic in the face of it.[40] But this is to diminish the complexity of pre-modern medicine in terms of its attention to prevention rather than remedy, its concern with the emotional as well as biological state of the person, and its role in a broader conception of dietetics in which not only environment, air, and climate but also diet, sleep, and sensory stability played a role in preserving health.[41] It is also to ignore the large amounts of narcotics that were recommended medicinally and which provided consolatory or fortifying effects rather than clinical utility.[42]

The next section suggests that the neglect of plague physic by historians of consumerism and intoxicants overlooks suggestive connections between the threat and outbreak of plague and demand for sugar, opiates, and tobacco during the long seventeenth century. Furthermore, the evolving medical prescription disseminated across the Baltic and North Sea, especially by Dutch and English authorities, point to exactly the kinds of accumulation in 'experience and knowledge' that, as de Vries notes, encouraged innovation in household consumption practices. Moreover, it did so for all types of householders – the wealthier sorts who could also choose flight or isolation and the more vulnerable, poorer majority for whom 'vulgar practices' were the primary hope of preservation.[43]

III Epidemics, intoxicants, and plague physic

The seventeenth century was a period of economic dynamism and urbanization for the metropoles of the Baltic and North Sea based primarily on intraregional commerce and imperial expansion.[44] Over the century, Stockholm's population grew from c. 9,000 to c. 57,000, Hamburg's from c. 36,000 to c. 70,000, Amsterdam's from c.54,000 to c. 235,000, and that of London from c. 200,000 to c. 575,000 (making it the largest city in Europe).[45]

Table 2 Significant Outbreaks of Plague and Estimated Numbers of Deaths in Metropoles in the North and Baltic Seas, 1600–1713

X = possible outbreaks without reliable mortality figures.

	Amsterdam	London	Stockholm	Hamburg
1602	10,700	-	-	-
1603	-	25,045	-	-
1604/1605	-	-	-	X
1617	8,449	-	-	-
1623	5,929	-	X	-
1624	c. 11,800	-	-	-
1625	c. 6,600	26,350	-	-
1628				min. 4,200
1629/1630	-	-	X	-
1635	8,177	-	-	-
1636	17,000–17,500	10,400	-	-
1638-1640	-	-	X	-
1653-1654	-	-	X	-
1655	13,000 – 13,500	-	-	-
1657	-	-	X	-

1663	9,752	-	-	X
1664	c. 24,000	-	-	c. 4,033
1665	-	55,797	-	X
1710-1711	-	-	c. 22,000	-
1713	-	-	-	max. 10,956

Sources: Figures for Amsterdam: Leo Noordegraaf and Gerrit Valk, *De gave Gods. De pest in Holland sinds de late middeleeuwen* (Amsterdam, 1996), 233-4; for London: Slack, *Impact of plague*, 151 (city and liberties in 1602–5 and 1623–5 and city, liberties and out-parishes for 1635–6 and 1663–5); for Stockholm: Karl-Erik Fransden, *The last plague in the Baltic region, 1709–1713* (Copenhagen, 2009), 68; for Hamburg (figures are rough estimates and refer largely to overall mortality during epidemics, not just deaths from plague): Hermann G. Gernet, *Mittheilungen aus der älteren Medicinalgeschichte Hamburg's. Kulturhistorische Skizze auf urkundlichem und geschichtlichem Grunde* (Hamburg, 1869), 279, 183; Johann Jakob Rambach, *Versuch einer physisch-medizinischen Beschreibung von Hamburg* (Hamburg, 1801), 295; Adolf Wohlwill, 'Hamburg während der Pestjahre. 1712–1714', *Jahrbuch der Hamburgischen Wissenschaftlichen Anstalten* **10** (1893), 41–42; Diederich Matthias Capell and Johann Nicolaus Gennagel, *Kurtze Verzeichnis Derjenigen Pestilentzen und Ansteckenden Seuchen/ womit Die Stadt Hamburg, in vorigen Zeiten Von der Starcken Hand Gottes heimgesuchet worden. Dem beigefüget einige Anstalten und Verordnungen/ welche E. Hochedl. Hochw. Rath bei gegenwärtigen Gefährlichen Zeiten ... Rühmlichst eingerichtet hat* (Hamburg, 1712), unpaginated, PURL: http://resolver.sub.uni-hamburg.de/goobi/PPN1023162474, here 18.

The pattern of plague epidemics in the metropoles demonstrates the density of their respective urban networks and levels of mobility and commerce.[46] As the dominant urban and trading hub within this regional network, it is unsurprising that Amsterdam experienced significantly more epidemics than Hamburg, London, or Stockholm or that its outbreaks tended to anticipate or coincide with contagion in the other cities.[47] Table 2 shows that

pestilence in Amsterdam preceded epidemics in London and Hamburg in 1602–5; there were outbreaks in Amsterdam, Stockholm, and London in 1623–5; an estimated 25,000 people died in Amsterdam and 10,400 in London in 1635–6; plague returned to Stockholm and Amsterdam in the mid-1650s; and Amsterdam, London and Hamburg endured epidemics a decade later, between 1663 and 1665. In line with this, it was probably due to improved quarantine protocols for ships arriving from infected places that the pandemic permanently receded after the mid-1660s.[48] The exception that to some extent proves the rule is 1710–13, when the last outbreak of pestilence in the Baltic and North Sea region was carried to Stockholm and Hamburg by armies deployed in the Great Northern War rather than merchantmen and shipping routes and left Amsterdam and London unscathed. Likewise, although the terrible epidemic in Marseilles in 1722 provoked intense public trepidation across Europe, it seems that quarantining protocols contained the outbreak.

It was in this era of relentless epidemics – and, almost as importantly, threats of epidemics – that sugar, tobacco, and opium became popular and affordable market commodities across the region.[49] Two 'sugar booms' dramatically increased the regional supply and consumption of sugar in the decades before 1680. The first, centred on Amsterdam between the 1590s and 1630s, was fuelled by Portuguese slave production in Brazil; the second, initiated from the 1640s by the introduction of English slave production in first Barbados and then Jamaica, helped turn London into an international commodities market.[50] These 'booms' involved not only intensive trading in sugar between the four ports but also the establishment of major sugar refining industries in Amsterdam, Hamburg, and London.[51] Tobacco followed a similar trajectory. From the 1610s, Amsterdam became a centre for at once Atlantic imports (both Iberian and British), domestic cultivation, tobacco

processing, pipe-making, and Europe's re-export trade.[52] By 1675, the Dutch grew an estimated 5 to 6 million pounds [lbs] of tobacco annually, supplementing imports that had grown to 57 million lbs per annum by 1670.[53] The economic model of imports, domestic cultivation, and manufacture was adopted by Hamburg and belatedly Stockholm. The manufacture and re-export of sugar and tobacco in the Baltic and northern Germany helped Hamburg thrive economically in the seventeenth century despite the relative decline of its medieval industries, including beer brewing, and in Stockholm the cultivation and manufacture of tobacco became a key feature of Swedish political economy from the first decades of the eighteenth century.[54] In London, in contrast, domestic tobacco cultivation was outlawed in 1619 to protect the Chesapeake colonies, where it had become the mono-crop upon which the colony's survival depended. Combined with imports from the Caribbean colonies, the supply of colonial tobacco increased to just over 3 million pounds (lbs) in 1638 and 28 million lbs by 1685.[55]

Although the trade in opiates and opium is more difficult to track due to recording conventions (it was often listed among generic 'apothecary goods' or 'drugs') two corroborative trends are nevertheless discernible. First, treacle (i.e. theriac) was a well-established commodity across the region by the early seventeenth century: along with enormous supplies of sugar it was a key component of the apothecaries' stock in Hamburg during the plague of 1605; and treacle was London's premier imported 'exotic drug' as ranked by value between the 1560s and 1610s.[56] Second, over the course of the century this supply of opiates was supplemented and enhanced by imports of raw opium – from the 1610s into London (including cargo from Amsterdam, the Levant, and India) and by the 1730s into Hamburg (when customs records first survive). These were trends that accorded

with amounts of treacle and opium circulating in France, where an estimated 4000 lbs were imported annually from Smyrna into Marseille by the early eighteenth century.[57] In London, this made for a 'level of imports in 1699–1701 … twenty seven times higher than a century earlier', leading Patrick Wallis to conclude that the 'consumption of imported medical drugs exploded in the seventeenth century and continued growing more gradually over the eighteenth century'. Taken together with lower pricing, proactive practitioners, and knowledgeable patients, it also made for an 'increase in the consumption of medicine that extended far beyond the elite'.[58]

Like sugar and tobacco, then, opium became a popular commodity in the decades after 1600 rather than 1700. By de Vries' own reckoning, 1.0 kg per capita of sugar was already consumed in England by the 1670s, rising to 2.6 kg per capita by 1700–9, just as per capita consumption of tobacco was 0.42kg by 1669 and 1.05 kg by 1698–1702.[59] This was in sharp contrast to coffee and tea. Per capita consumption of coffee was only 0.05 kg in 1699–1701 but had risen to 0.5 kg per capita by 1749–51; tea was an import of no fiscal consequence at all in 1700 but had risen to per capita consumption of 0.28 kg by 1722 and 0.5 kg by 1750–9.[60] Whereas the European assimilation of caffeine was clearly not a response to pestilence, the links between plague and the commodification of sugar, opiates and tobacco was very strong. Indeed, in the case of tobacco at least seven unusually large jumps in the volume of imports can be correlated with specific outbreaks of plague. Epidemics in London and Amsterdam in the mid-1620s coincided with English imports rising from around 100,000 lbs in 1623 to over 400,000 lbs in 1626 and to over 500,000 lbs in 1628.[61] Outbreaks in the same cities a decade later saw English imports lurch from 500,000 lbs in 1634 to over 3,000,000 lbs in 1638, while in Amsterdam after 1636 there was considerable expansion of

the manufacturing, import, and re-export trade.[62] A similar jump occurred in England during the outbreak of 1665, with imports rising by one million lbs between 1664 and 1669; but perhaps the clearest link between plague and supply was in the Baltic in the early eighteenth century. In Hamburg tobacco imports increased between 1623 and 1633, with the plague epidemic of 1628/29 in between.[63] In both Hamburg and its German hinterlands – where tobacco was well-established by 1650 – plague in 1663–65 and in 1713 seems to have stimulated a second consumption rush in the city and its German hinterlands.[64] And in Stockholm the epidemic of 1710 precipitated the rapid expansion of domestic tobacco cultivation and manufacture along German and Dutch lines, with tobacco becoming one of the success stories of Swedish economic policy.[65]

If household consumption practices were shaped by the intraregional flow of bacteria and intoxicants, they were also informed by the exchange of ideas, skills, and prescriptions: medical discourses about sugar, opium and tobacco that complemented and informed their material histories. Crucial to making this discourse intraregional was print technology. Print enhanced the transnational communication and mobility of medicine's educated elites – its traditional 'republic of letters' – through Latinate publication.[66] It enabled the translation and social dissemination of 'elite' knowledge into vernacular cultures – and vice versa – and the development of national medical cultures informed by the intraregional flow of information.[67] It allowed all manner of authors to advertise their medical wares, skills, experiences, and opinions for reading and purchasing publics.[68] And perhaps most importantly, the burgeoning genre of medical advice literature – including plague tracts and recipes – provided individual households with certain amounts of agency and competency in terms of the *materia medica* and procedures they adopted.[69]

All four cities shared in this print culture, though they did so in slightly different ways. The proximity of universities like Leiden and Utrecht meant that Amsterdam joined traditional centres like Padua and Paris as a hub of new medical knowledge during the seventeenth century. London was more notable for the precocity of its market in vernacular translations and popular genres: just as the English metropolis was the first European city to have its pharmacopeia translated from Latin into an (unauthorised) vernacular copy, in 1649, so van Diemerbroeck's tract on plague was translated from Latin into an abridged English version even before it was translated into Dutch (in 1671).[70] This precocious interpenetration of Latinate and vernacular physic contrasted with Stockholm, where for most of the seventeenth century a cadre of educated and cosmopolitan practitioners, buttressed by royal authority, maintained their cultural and professional distance from the indigenous populace and from academic medicine at nearby Uppsala University. Even here, though, Diemerbroeck's precepts were publicly shared and critiqued in the vernacular by physicians during the crisis of 1711 (a slightly sceptical Magnus Gabriel von Block noting that 'Diemerbroeck smoked himself, and prescribed others to smoke tobacco, but only good leaves, and this must have been how he never was infected').[71] This was different again to Hamburg, where medical expertise was aligned to civic rather than monarchical power, and where comparatively sophisticated and plentiful healthcare and poor relief structures depended upon high levels of voluntarism and vast amounts of charity from the city's burghers.[72] And as in Stockholm, Hamburg's leading physicians recommended Diemerbroeck's methods, including his resort to tobacco, in 1711.[73]

Over the course of the century this intraregional discourse witnessed significant innovations in the *materia medica* that made the consumption of intoxicants more rather than less likely during epidemics. Sugar was the least contentious and conceptually stable ingredient: a preserver, mixer, and sweetener that even before the Brazilian and Barbadian sugar booms had been prescribed to help the prophylactics, electuaries, elixirs, cordials, and fortifiers go down (though the booms, of course, helped make prescription practical for increasing numbers of households).[74] In Hamburg and Stockholm, where the taste for sugary medicines was especially pronounced, a popular prophylactic was *Confectio Praeservatoria* – little sugar cakes that were to be held in the mouth while venturing about in the city to ward off contagious air.[75] Two kinds of sugar cakes were sold in Stockholm's apothecaries during the epidemics in 1638, 1652 and 1710: one for the rich and one for 'ordinary people'.[76]

Opiates like diascordium, mithridate, and especially treacle were as established as sugar and even more ubiquitous within plague physic. But as the operative rather than mixing agent in most remedies, opium underwent several innovations over the course of the century. First, the monopoly of Venice Treacle, marketed throughout the previous three centuries as the original and most efficacious opiate, was undermined: in London in the 1610s, for example, imports switched from theriac to raw opium at the same moment that local apothecaries began branding their own preparations as 'London Treacle'.[77] Second, the predominance of theriac and other mild opiates in plague physic was challenged by two innovations. On the one hand, a European-wide network of practitioners influenced by Paracelsian methods promoted recipes for 'laudanum' – another opiate – as a more powerful and effective supplement, or even alternative, to treacle. The itinerant physician Angelo Sala, for

example, extolled laudanum in his widely translated *Opiologa* in 1614 while based in the Hague (it was published in French and subsequently in English and Latin) and thereafter advised various German cities and princes on their opiate provision, including Hamburg.[78] On the other hand, and slightly later in the century, opium was repackaged in 'propertied' medicines that were marketed as branded products.[79] 'Matthew's Pill', for example, was a diuretic and diaphoretic that had been created by the leading chemical physician George Starkey in the 1650s and first tested (as a form of self-experimentation) and then marketed by Richard Matthews.[80] Invoking the principles of the Flemish chemist Van Helmont, their collaborator George Kendall explained in 1664 that the achievement of the pill was its use of chemicals to enable the consumption of true opium by negating its poisonous effects.[81] He also rhapsodized about the curative powers of the narcotic in general and argued that for all the criticisms of the medical establishment 'Opium is a principal ingredient, in many of their prime medicines'.[82]

This points to the third development in opium's relationship to household consumption: its transformation in medical practice from a dangerous and remedial plague medicine into a veritable 'universal panacea' that was revered for its treatment of ailments ranging from sleeplessness, melancholy, and delirium to diarrhoea, fever, and pain.[83] The influential Dutch practitioner Paul Barbette eulogised in 1655 that 'frequent and curious use' had demonstrated that no other medicine 'gives so present relief to the Patient as Opium'; he prescribed two grains of 'laudanum opiate' in his own 'Prophylactic-water'.[84] In Stockholm, von Block recorded how a nursing mother was finally cured from the plague after having been given opium.[85] By the end of the century the physician Gideon Harvey was just one of many commentators noting his profession's love affair with the erstwhile dangerous

narcotic: their 'doting' on its 'inviting Faculties'; the proliferation of hundreds of 'secret' preparations; and how 'Whenever Mr. Doctor is to storm some great Distemper, *Diacodium* and *Laudanum* are advanced by him, as most trusty and faithful, to do the work'.[86]

This diversification of opiates products and their percolation into more general medical practice coincided with the gradual accommodation of tobacco into official plague physic. As a herb new to Europeans in the sixteenth century, its uptake was initially legitimated, at least in metropolitan centres, by its perceived medical benefits, although mariners and soldiers likely encouraged more popular and less prescribed forms of consumption and by the turn of the seventeenth century commentators were complaining that elites were smoking recreationally rather than medically.[87] During this early phase of adoption, tobacco was never presented in print as a prophylactic or antidote to pestilence. It is likely, however, that consumers were already regarding it in those terms: the earliest public engagement with the practice may have been in 1611, Edmund Gardiner seeing 'no reason why' tobacco would not have as much success against 'plague, and other poisonous sicknesses' as indigenous herbs.[88] But this was by no means the expert view, and by the 1620s physicians were having to respond to the popular consumption of tobacco during epidemics by warning readers about its inefficacy. In 1625, for example, the physician Stephen Bradwell felt compelled to refute the 'whisper' that tobacco was 'the only Antidote against the Plague' and in 1639 James Primrose averred against the same 'popular error'.[89] What is remarkable about Van Diemerbroeck's case-history, therefore, is that an internationally renowned expert on plague physic – one still cited as a key authority across the North Sea and Baltic region in the eighteenth century – should so emphatically endorse a popular rather than prescribed practice with the evidence of his own 'experience'.[90] More, he

explained his impulse to smoke on the grounds that few 'tobacconists' (smokers) had died in London in the 1625 outbreak (a claim disputed by others).[91]

Following van Diemerbroeck's very public emulation of common and unauthorised practice, medical discourse about tobacco and plague adjusted to the reality of popular consumption in two ways. First, just as influential physicians like Barbette now publicly acknowledged the potential utility of tobacco even if they did not like the smoke themselves, so other less distinguished proponents of its prophylactic qualities could note that 'The truth hereof is in a great measure of late confirmed by the practise of the most eminent, now taken for this very reason, by the advice of the best of Physicians now extant, though not long since slighted and prohibited'.[92] Second, its utility for non-elite households – precisely those most vulnerable to infection by plague – was especially emphasised. In 1665, Gideon Harvey listed it as a 'preservative of the poor', noting that 'To smoak Tobacco oft, especially Mornings and Evenings seems an excellent Preservative', and the dissenting minister Richard Kephale advised those who could not afford the medicines of 'the richer sort' that 'It is very good to take Tobacco, to eat Raisins of the Sun fasting, or to drink a pint of Malaga in a morning against the Infection'.[93] The sudden promotion of tobacco by medical experts in Amsterdam and London also occurred in Hamburg and Stockholm. Although von Block in Stockholm remained sceptical in 1638 – for all the power of Diemerbroeck's testimony, he advised that 'smoking tobacco is not enough if a person is living in a plague-stricken house' – by 1711 his compatriot, Johan Jacob von Döbeln, could exclaim that 'Tobacco is a precious preservative, and now is the opportunity for the womenfolk to get used to it.'[94] In the same year, Prangen invoked van Diemerbroeck and Barbette when recommending the medicinal benefits of tobacco to Hamburg's citizenry.[95]

IV Gender, accustomisation, and tastes

Döbeln's prognosis at once anticipated the development of the post-plague Swedish tobacco industry and invoked the kind of mixed gender consumption generally required of mass commodification. In so doing, it echoed the bundle of goods found on Randall Chaddock in Chester, in northwest England, a hundred years earlier. In 1613, Chaddock was suspected of vagrancy and theft by the city authorities and forced to explain that he 'hath little to live on, but hath bought and sold apples and tobacco, and other things'. On this occasion he 'came to the town to buy tobacco, apples, starch, and treacle', although he admitted that 'he brought no money'.[96] What is striking about his statement is that not only was a provincial peddler trading in tobacco and treacle as early as 1613, but that the intoxicants were bundled together in a cache of starch (for washing) and apples (for food preparation) that was indicative of domestic – female – work and consumption.

The combination of goods in his 'groceries' bundle should not be surprising. The apparent connection between epidemics, the intraregional circulation of sugar, opiates, and tobacco, and vernacular advice literature about how to use them would suggest that seventeenth-century plague physic – and, indeed, physic more generally – had a significant impact on household consumption practices, including female consumption. When the Nottinghamshire surgeon Thomas Biggs petitioned the Privy Council in May 1620 to be allowed to harvest a crop of tobacco he had sowed (despite the recent ban on domestic consumption) he explained he had invested in tobacco to supplement his income 'because of late times [tobacco consumption] is so much practised in the county by ladies and other gentlewomen'.[97] A government enquiry into tobacco retail and consumption in 1630s'

England revealed that men and women of all sorts and occupations at once retailed the herb and consumed it in both public and domestic settings.[98] Neither did the development of more stable marketing infrastructures buck the trend. A systematic survey of inventories in the provincial city of Norwich shows that at least one grocer, Edward Warner, was selling treacle, tobacco, and sugar in combination in 1626 (there was severe plague in Norwich and the south-east of England in 1625 as well as in London).[99] A sample of 23 grocers' inventories between 1660 and 1729 demonstrates in turn that 100 per cent of provincial grocers sold sugar and tobacco and just under half of them sold 'apothecaries wares'.[100] These were shops supplying households in general and women in particular.

The gendered nature of domestic sugar consumption is well known. Indeed, the syrups, cakes, cordials, and confections so key to physic were in many respects the extension of sugary cooking and preparations performed by women. But the relationship of women to opium and tobacco is historiographically murky, albeit for different reasons. The early modern history of opium remains to be written – it is not just the sociology of its consumers that is obscure but most aspects of practices involving opiates. Pre-modern stories about tobacco, in contrast, have been largely predicated on the assumption that it was a masculine commodity which very few women in north-western Europe legitimately consumed – unless by snuffing – before the mass marketing of cigarettes in the twentieth century.[101]

Yet, when viewed from the perspective of the eighteenth and nineteenth centuries the ostensible absence of opiates and tobacco from early modern household consumption becomes puzzling. Virginia Berridge long ago outlined the social depth, gendered mix, and

quotidian nature of opiate use in England at the start of the nineteenth century and simply assumed that its consumption in previous centuries, certainly for medical purposes, was 'widespread'.[102] More recently, osteological work has demonstrated that between 1700 and 1850 female smoking was much more prevalent in England than historians assumed. According to Anna Davies Barrett and Sarah Inskip, the teeth of skeletons buried in East Yorkshire (between 1700–1850), Coventry (between 1776–1680), and St James Gardens London (between 1788–1853) indicate that 33 per cent of women in a rural village, 39 per cent in a provincial city, and 44 per cent in the metropolis smoked habitually between 1700 and 1850.[103] Although equivalent analyses have not been done for the rest of the Baltic and North Sea region, per capita consumption as estimated from imports suggest that levels of smoking in post-plague England were similar to the Baltic and considerably lower than Scandinavia and the Netherlands over the same period.[104] Certainly, recent archeological digs in central Stockholm have found thousands of tobacco pipes, the earliest dating from the first half of the seventeenth century.[105]

The intraregional equivalence of practices is suggested by other kinds of evidence. A dissertation in medicine from Uppsala in 1633 noted that 'nowadays it is hardly possible to find a person who is not well versed in the art of smoking'.[106] The Stockholm physician von Block informed readers that 'a rider's wife (…) had heard of the great advantages of using tobacco against the plague, and had a pipe in her mouth morning and night'. He added that in this instance smoking could not prevent her becoming ill, and it was through his own prescriptions he finally cured her.[107] The theologian Johann Christian Müller remembered that when he visited his brother's family in Hamburg in 1744:

> In the gardens we saw old women hoeing the grass. They had a short stump of a pipe in their mouths and their *bouteille* filled with brandy at their sides, from which they took frequent drags. The post official answered that I would see more of that in Hamburg soon enough, then almost all women there smoked.[108]

These were most likely women working in the market gardens to the southwest of the city walls and hence women from a semi-rural and labouring milieu. But not only poorer, working women were fond of a pipe in Hamburg; the habit was also common among the middling sorts. Müller recalled that:

> Few days in each week passed without us receiving visitors or being guests in the homes of others. As our first visitors arrived, I saw two tea tables, upon the first of which lay large, long pipes, with *Cardons*, upon the other long pipes with small bowls stuffed with mild, yellow tobacco, of which I believed that they were there for the sake of enthusiasts. Little time passed before three or four tall ladies in raincoats and large hooped skirts entered the room; the men followed suite. The ladies sat down to the smaller pipes. They immediately reached for those that were already filled [with tobacco], smoked and spat, despite the men, and conversed with them for all its was worth.

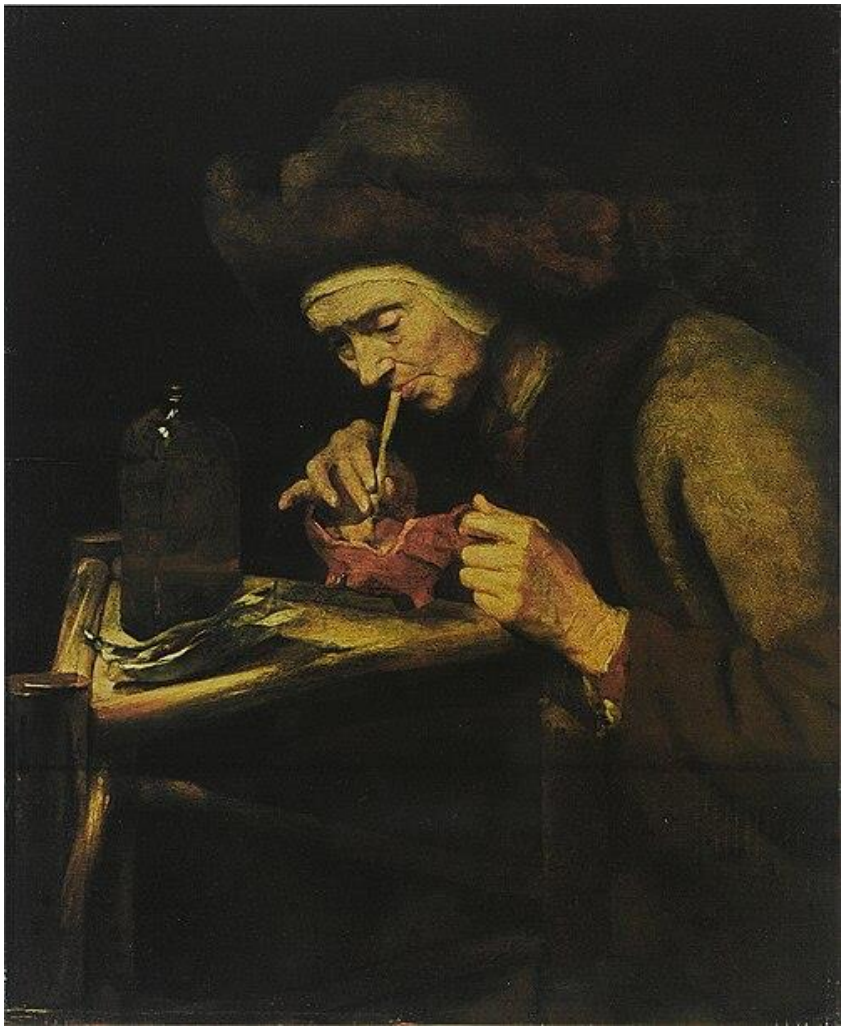
When Müller 'inquired of my sister[-in-law] after the guests had left, whether this was customary here, and why she did not smoke herself' he was told that 'she was never able to find pleasure in it, and that there were many others who held equally little thereof'.[109] A century earlier Dutch painters likewise depicted female smokers in both public and

domestic settings, and from different social strata. Historians have tended to stress the satirical intent of these images and the moralising informing them; but this can obscure that there were clearly practices there to be satirised and moralised in the first place.[110]

Figure 1

A woman seated smoking a pipe (1650 to 1667) after Gabriel Metsu,1629-1667); previously attributed to Gabriel Metsu. Manchester City Galleries, available at VADS: https://www.vads.ac.uk/digital/collection/NIRP/id/29025/

Figure 2



An elderly woman smokes a pipe (17th Century), attributed to Abraham van Dyck (1635-1680), https://commons.wikimedia.org/wiki/File:Abraham_van_Dijck_1635-1672_Cigarette-smoking_older_lady.jpg

The mid-seventeenth century images attributed to Gabriel Metsu and Abraham van Dyck are intimate portraits of a younger and an older Dutch woman smoking a pipe (see Figures 1 and 2).[111] They suggest a custom or habit that was private, absorbing, and domestic, and which spanned the generations If Jan Steen's *The Merry Family* (1668) is chiding the merry parents for their parental negligence, the fact that their young sons and daughters can sneak puffs on pipes and drams of drink also indicates the quotidian domestication of tobacco and alcohol.[112]

Figure 3

Jan Steen, *The Merry Family* (1668), Rijksmuseum
https://upload.wikimedia.org/wikipedia/commons/5/53/Jan_Steen_Vrolijke_huisgezin.jpg

More normative was the doll's house of the wealthy orphan Petronella Dunois. Miniaturising in exquisite detail the rooms and contents of typical bourgeois Amsterdam home *circa* 1676, smoking and pipes were clearly integral features of the dining and reception rooms.[113] It resonates with the way tobacco and snuff boxes became important to the construction of both female and male identities in the century and half after 1650.[114] And while Jan Olis's *Elegantly Dressed Women Drinking and Smoking* (1645) is morally ambivalent, it nevertheless visualises precisely the kind of bourgeois conversation scene recalled by Müller a century later.[115]

Figure 4

Dollhouse by Petronella Dunois, anonymous, ca. 1676, Rijksmuseum https://www.rijksmuseum.nl/nl/rijksstudio/kunstwerken/poppenhuizen/objecten#/BK-14656,0

Figure 5

Jan Ollis, *Elegantly Dressed Women Drinking and Smoking* (1645), Private Collection: https://www.wga.hu/html_m/o/olis/index.html

Viewed retrospectively, then, plague physic becomes not so much an anomalous or irrelevant moment in the material history of household consumption as one of the possible routes by which opiates and tobacco, along with sugar and wine, became fully assimilated

into domestic spaces and practices. Women were integral to this assimilation because, along with preparing and consuming food and drink, they oversaw healing practices within households and often prepared as well as consumed the preventative, remedial, and fortifying Z-commodities so prescribed.[116] Their contribution to domestic dietetics as well as diet – to a household's emotional as well as dietary regimes – made them crucial in determining the prophylactics, remedies, and fortifiers adopted; and, if used faithfully, to the physic that structured and ritualised the day.[117]

Yet, they also contributed to the intoxicant economy in another, less observable way: through the habitual, illicit, and potentially dependent forms of consumption that domestic consumption might habituate. Certainly, contemporaries were fully aware of the dangers of medical prescriptions becoming social dependencies – or what might be styled (to use the medical language of the time) 'accustomisation'.[118] For example, despite sanctioning recourse to tobacco as a medical expert, van Diemerbroeck warned readers that 'Narcotics are to be used as little as may be, for fear of accustoming the Patient too much to the use of them'. More, he demonstrated that the consequences of accustomisation were anatomically proven: just as 'in diseased Persons, especially such as took too much foul Tobacco in their Life-time, I have found it of a blackish Colour', so in 'one that was a Slave to Tobacco and Brandy, and afterwards died of a long *Asthma,* I found all the Lungs not only of a blackish Colour, but dried up to an indifferent hardness, with some small Ulcers scattered here and there'.[119]

Across the region, expert proponents of tobacco were fully aware that it is 'harmful if it is abused and used in abundance.'[120] The dangers of accustomisation were elaborated in

detail by Thomas Willis as early as 1665. Willis was an admirer of van Diemerbroeck and reputedly the wealthiest physician in England when he died in 1675. When confronted with plague in London in 1665, he advised that 'taking of Tobacco in a pipe' was an effective prophylactic and potential antidote, and that 'the frequent use of Tobacco [was] doubtless in time of Plague […] profitable to them that can take it'.[121] He was also clear that smoking had become a socially ubiquitous practice: 'I need not trouble myself to tell you the original or usage of this invention, which is so commonly known and practised by men and women of all sexes, ages, and conditions'.[122] Noting the uptick in consumption during previous epidemics, he nevertheless acknowledged two ways in which resorting to narcotics was risky.[123] On the one hand, users became so inured to the substance that its effects diminished: 'if 'tis not of so great virtue still amongst us, the reason is, because most Men have been accustomed to take it so excessively; wherefore it is grown so familiar to them, that it produces no alteration'.[124] On the other hand, the mental and bodily pleasures derived from narcotics could become the primary reason for consuming them. Despite the 'very great disturbances in their Brain and Nerves' initially experienced with opiates or smoke, 'as soon as that custom is become usual and familiar to a man [by which he clearly meant men and women], it likewise grows very grateful, and affects the animal spirits with so much pleasure, that some men had rather abstain from meat or drink than from the use thereof'. This was because 'smoking doth gently raise, and as it were tickle the animal spirits whenever they are dull and sluggish, and puts them into pleasant expansive motions, with which they are recruited and refreshed in a wonderful manner, as after drinking of Wine'.[125] But it was not just narcotics that risked accustomisation. In Hamburg, physicians warned that sugar cakes should be consumed with 'caution and modesty' – and gradually – so that

the physic did not become too pleasurable; and as with opium and tobacco, the utility derived from sugar was lessened if it was used superfluously.[126]

V Conclusion

This article has argued that pestilence and medical responses to it contributed to the psychoactive revolution in the metropoles of the Baltic and North Sea during the long seventeenth century. This is unsurprising, perhaps, given that social catastrophes are increasingly linked by historians to the uptake of psychoactive substances: how, for example, the American taste for opiates was forged among soldiers in the 1860s Civil War and World War One became the midwife of the cigarette.[127] In contrast to modern warfare, however, what is striking about the final century of the Second Pandemic is that they preceded these kinds of event by more than a century and affected the tastes of women as well as men. And whereas the stricter policing of public spaces during plague might suggest that pandemics militated against excessive and sociable consumption, so the importance of intoxicants to physic meant that the possibility of domestic and 'private' intoxication – and any longer-term habits of dependency that followed from accustomisation to them – was quite as likely as the more visible pursuit of 'public' pleasures.

Viewed generally, therefore, the correlation between epidemics and material and discursive developments offers a useful reminder of the many and varied reasons why pre-modern people consumed what they did – choices based on dietetic advice and custom that are not always recognised in the social and especially economic historiography. Certainly, the threat of plague and its dietary consequences serves as a tangible and socially ubiquitous influence

on ‘tastes’ to consider alongside other explanatory frameworks like emulation, fashion, and frivolity. More specifically, the correlation between plague physic and intoxicants points to a range of materials, competencies, and meanings that do not so much refute de Vries’ narrative of industriousness, or the conception of household economics upon which it rests, as complicate it culturally and deepen it temporally.[128] The intoxicating Z-commodities discussed by de Vries after 1700 were not the ones prescribed so intensely and repeatedly in the preceding hundred years; nor were they necessarily consumed in the pursuit of politeness, respectability, or, ostensibly at least, comfort or pleasure. As importantly, the dangers of opiates, tobacco and sugar as articulated by contemporaries’ points to the issues of habituation and addiction – styled here ‘accustomisation’ – largely elided by a focus on industriousness.

A convergence of these pre- and post-1700 trends in domestic consumerism practices occurred in 1722, when the very real prospect of an epidemic in Marseille reaching the rest of Europe prompted a huge surge in public discourse about plague and appropriate responses to it.[129] One London retailer based at the Anodyne Necklace without Temple Bar looked to commercially exploit the situation as comprehensively as possible. In a choreographed sequence of adverts, they recounted the horrors of 1665 before revealing some of the proven secrets of preservation and remedy. These secrets were a miscellany of printed advice from the 1660s which, in addition to extolling the remedial powers of opiates, served to introduce customers to the prophylactic commodities now sold at the Anodyne Necklace and other designated retailers as part of a ‘practical scheme’ – ‘Cephalick and Opthalmick Tobacco’ (to be smoked or snuffed); ‘Cleansing Sugar Plumbs’ to be sucked like sweets; and various citrusy drinks, tinctures, and elixirs to be added to newer beverages

that did not work against the plague and which were themselves suspected of inducing 'Weaknesses, Tremblings, and other Paralytic affects': tea, coffee, chocolate, drams.[130] Readers were advised to prepare tea with a little sugar and milk ('for an innocent gratefulness to the Palate') and coffee with sugar ('double refined') but without milk.[131] Accompanying sheets cited the 'Great Diemerbroeck' and the 'Great Willis' to demonstrate both the efficacy of smoking in time of plague (allegedly no 'tobacconists' died in 1665) and the sensory pleasures of smoking or snuffing this new tobacco, enhanced with additives, even without the threat of epidemics. The sugar plumbs had an 'Appendix' extolling their virtues all to themselves.[132]

The adverts nicely capture the intermix of older and newer intoxicants now vying for consumer tastes not only in London but also Amsterdam, Hamburg, and Stockholm. They also demonstrate the remarkable commercial opportunities still afforded by pestilence: as a stimulant to product innovation and the repackaging of familiar substances; as a gateway to accustomisation and longer-term consumption; and as an implacable challenge for the household economics of both rich and poor.

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[1] Fernand Braudel, *Afterthoughts on material civilization and capitalism*, translated by Patricia Kanum (Baltimore, 1977), 11–12.

[2] For examples see Wolfgang Schivelbusch, *Tastes of paradise: a social history of spices, stimulants and intoxicants* (London, 1993); Jordan Goodman, Paul E. Lovejoy and Andrew Sherratt, eds., *Consuming habits: global and historical perspectives on how cultures define drugs* (Second edition, Abingdon, 2007); Benjamin Breen, *The age of intoxication: origins of the global drug trade* (Philadelphia, 2019); Kathryn James and Phil Withington, eds., *Intoxicants and early modern European globalization*, *The Historical Journal* **65**, Special Issue 1, (2022).

[3] David Courtwright, *Forces of habit: drugs and the making of the modern world* (Cambridge, Mass., 2001), 9, 32, 207. See also Frank Dikotter, Zhou Xun and Lars Laamann, *Narcotic culture: A history of drugs in China* (London, 2016), 9–14.

[4] Jan de Vries, 'The Industrial Revolution and the Industrious Revolution', *Journal of Economic History* **54** (1994), 249–70.

[5] Jan de Vries, *The Industrious Revolution: consumer behaviour and the household economy, 1650 to the present* (Cambridge, 2008), 154–68.

[6] Kenneth Pomeranz, *The Great Divergence: China, Europe, and the making of the modern world economy* (Princeton, 2000).

[7] Braudel, *Afterthoughts*, 110.

[8] Gary S. Becker, 'A theory of the allocation of time', *Economic Journal* **75** (1965), 493–517.

[9] Patrick Wallis, 'Exotic drugs and English medicine: England's drug trade, c. 1500–c. 1800', *Social History of Medicine* **25**, 1 (2012), 20–46; Patrick Wallis and Teerapa Pirohakul, 'Medical revolutions? The growth of medicine in England, 1660 – 1680', *Journal of Social History* **49**, 3 (2016), 510–531.

[10] De Vries, *Industrious Revolution*, 154–68, 176–80.

[11] Braudel, *Afterthoughts*, 66–7, 85.

[12] David Ormrod, *The rise of commercial empires, England and the Netherlands in the age of mercantilism, 1650 – 1770* (Cambridge, 2003), 335–6.

[13] Phil Withington, 'Intoxicants, addiction and the humoral body', *The Historical Journal* **65** (2022), 83–7.

[14] Andreas Reckwitz, 'Toward a theory of social practices: a development in culturalist theorizing', *European Journal of Social Theory* **5**, 2 (2002), 249; Elizabeth Shove, Mika Pantzar, Matt Watson, *The dynamics of social practice: everyday life and how it changes* (London, 2010), 7.

[15] De Vries, *Industrious Revolution*, 26–8, 36.

[16] Ibid., 52.

[17] Ibid., 58–70, 126–8.

[18] Mintz, *Sweetness and power*, 214, cited in de Vries, *Industrious Revolution*, 31.

[19] De Vries, *Industrious Revolution*, 32.

[20] Ibid., 32; Woodruff D. Smith, *Consumption and the making of respectability 1600–1800* (London, 2002), 122–3. For Pepys see Phil Withington, 'Where was the coffee in early modern England?', *The Journal of Modern History* **92**, 1 (2022), 51.

[21] Ysbrand van Diemerbroeck, *Tractatus de Peste* (*De peste libri quatuor. Truculentissimi morbi historiam ratione & experientia confirmatam exhibentes* (Arnhem, 1646). All quotes are from the first English translation of extracts from the original tract: Ysbrand van Diemerbroeck, *Several choice histories of the medicine's manner and method used in the cure of the plague* (London, 1665).

[22] Van Diemerbroeck, *Several choice histories*, 33.

[23] Ibid., 33–4.

[24] Ibid., 34.

[25] For some examples of absence see Jane Whittle and Elizabeth Griffiths, *Consumption and gender in the early seventeenth-century household: the world of Alice Le Strange* (Oxford, 2012); Jon Stobart, *Sugar and spice: grocers and groceries in provincial England 1650–1830* (Oxford, 2013).

[26] Christiane Nockels Fabbri, 'Treating medieval plague: the wonderful virtues of theriac', *Early Science and Medicine* **12**, 3 (2007), 247–83.

[27] Shove, *The dynamics of social practice*, 14–15. See also Angela McShane, 'Tobacco-taking and identity-making in early modern Britain and North America', *The Historical Journal* **65** (2022), 108–12.

[28] Diemerbroeck, *Several Choice Histories*, 35, 37, 39, 41, 45, 47.

[29] Gideon Harvey, *The family physician and the house apothecary* (London, 1678), 8–13.

[30] Lara Elyse Thorpe, ''In middst of death': medical responses to the Great Plague of 1665 with special reference to John Allin' (unpublished PhD, University of Royal Holloway, 2017), 54–5, 58–9.

[31] Ibid., 31–71.

[32] David Gentilcore, 'The fear of disease and the disease of fear' in William G. Naphy and Penny Roberts, *Fear in early modern society* (Manchester, 1997), 185.

[33] See letters no. 9 from 27 Jul 1664 and no. 11 from 17 Aug 1664 in Marijke van der Wal, *Koopmanszoon Michiel Heusch op Italiëreis: Brieven van het thuisfront (1664–1665)* [Merchant's son Michiel Heusch travelling in Italy: Letters from home (1664–1665)] (Hilversum, 2019). Many thanks to Marijke van der Wal for providing English translations of these letters for our research.

[34] Paul Slack, *The impact of plague in Tudor and Stuart England* (Oxford, 1990), 249–50; Thorpe, ''In Middst of death', 76, 92–3.

[35] Andreas Palmcron, *Andreæ Nicolai Sparmans, som, sedan han adlades, blef kallad Palmchron, Korta berättelser, huru man sig emot pestilentzen och rödsoten förwara skal, tilförene tryckte i Stockholm åhr 1638 och 1652; men nu å nyo vplagde i Upsala åhr 1710: tillika med hans lefwernes beskrifning.*, ed. Johan Heinrich Werner (Uppsala, 1710 (1638)). See also Magnus Gabriel von Block, *Åtskillige anmärkningar öfwer närwarande pestilentias beskaffenhet motande, botande och utrotande uti Östergötland, under margehanda ämbetz syslor i största hast och en wälment nit upteknade af Magnus Gabriel Block* (Linköping, 1711), 6, 19.

[36] Ernst Wilhelm Prangen, *Kurtzer doch gründlicher Bericht/ Wie man sich gegen die gefährliche Seuche der Pest/ Durch Gottes Hülffe/ Nicht nur öffters præserviren/ sondern auch davon curiren könne* (Hamburg, 1711), 16; Andreas Palmcron, *Andreæ Nicolai Sparmans, som, sedan han adlades, blef kallad Palmchron, Korta berättelser, huru man sig emot pestilentzen och rödsoten förwara skal, tilförene tryckte i Stockholm åhr 1638 och 1652; men nu å nyo vplagde i Upsala åhr 1710* (Uppsala, 1710).

[37] *The diary of Samuel Pepys: daily entries from the seventeenth century London diary*, 6th June 1665, accessible at: https://www.pepysdiary.com/diary/1665/06/07.

[38] Thomas Willis, *A Plain and Easie Method FOR Preserving [by God's Blessing] those that are WELL from the Infection of the PLAGUE* (London, 1691), 22; Johannes Ebelingk, *Idaea Loimodes. Das ist: Ein Kurtzer unnd Einfeltiger Bericht/ wie man sich in der jetzo schwebender Pestilentzzeiten und Sterbensleufften/ mit der Praeservation oder Verwahrung/ wie auch der Curation und Heylunge der Pestilentz/ und etlicher jhrer Accidentien und Zufälle verhalten soll In H. Stadt* (Hamburg, 1628), 22, 24, 28.

[39] Slack, *Impact*, 35; Daniel Defoe, *A journal of the Plague Year* (London, 1722), 43. For the neglect see Martin Dinges, 'Pest und Staat: Von der Institutionsgeschichte zur sozialen Konstruktion?' in M. Dinges and Thomas Schlich, eds, *Neue Wege in der Seuchengeschichte* (Stuttgart, 1995), 71–104; Alan Dyer, 'The Influence of Bubonic Plague in England', *Medical History* **22** (1978), 308–26.

[40] Keith Thomas, *Religion and the decline of magic: studies in popular beliefs in sixteenth and seventeenth century England* (London, 1971), 17–22.

[41] Steven Shapin, 'Why was "custom a second nature"?', *Bulletin of the History of Medicine* **93** (2019), 1–26; Mary J. Dobson, 'Contours of death: disease, mortality and the environment in early modern England', *Health Transition Review*, Vol. 2, Supplement: Historical Epidemiology and the Health Transition (1992), 77–80.

[42] Fabbri, 'Treating medieval plague'; Slack, *Impact*, 30, 35.

[43] Neil Cummins, Morgan Kelly and Cormac O'Grada, 'Living standards and plague in London, 1560–1665', *The Economic History Review* **69**, 1 (2016), 32; Defoe, *A journal*, 36–8. See fn 40, above.

[44] Jan de Vries, *European urbanization 1500–1800* (London, 1984), 159–61. Henry Roseveare, ed., *Markets and merchants of the late seventeenth century: the Marescoe-David letters 1668- 1680* (Oxford, 1991).

[45] Robert Sandberg, 'Huvudstad i ett stormaktsvälde', in Lars Nilsson and Göran Dahlbäck eds. *Staden på vattnet. 1252–1850* (Stockholm, 2002), 75–184; Hans-Dieter Loose, 'Das Zeitalter der Bürgerunruhen und der großen europäischen Kriege 1618-1712', in Werner Jochmann and Hans-Dieter Loose, eds, *Hamburg: Geschichte der Stadt und ihrer Bewohner*, Vol 1, (Hamburg, 1982), 265–266; Hubert Nusteling, *Welvaart en werkgelegenheid in Amsterdam 1540-1860. Een relaas over demografie, economie en sociale politiek van een wereldstad* (Amsterdam, 1985); Marco H.D. van Leeuwen and James E. Oeppen, 'Reconstructing the demographic regime of Amsterdam 1681-1920', *Economic and Social History of the Netherlands*, V, (1993), 61-102; E. A. Wrigley, 'A simple model of London's Importance in changing English society and economy, 1650-1750', *Past & Present*, 37, 1967, 44.

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[48] Paul Slack, 'Responses to plague in early modern Europe: the implications of public health', *Social Research* **87**, 2 (2020), 409–28.

[49] Carole Shammas, *The pre-industrial consumer in England and America* (Oxford, 1990), 78–9.

[50] Eddy Stols, 'The expansion of the sugar market in Western Europe' in Stuart Schwartz, ed., *Tropical Babylons: sugar and the making of the Atlantic world, 1450–1680* (Chapel Hill, 2004), 266; John J. McCusker

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[51] Stols, 'Expansion', 270–72; Jan de Vries & Ad van der Woude, *The first modern economy: success, failure and perseverance of the Dutch economy, 1500–1815* (Cambridge, 1997), 326–29.

[52] Clé Lesger, *Het winkellandschap van Amsterdam. Stedelijke structuur en winkelbedrijf in de vroegmoderne en moderne tijd, 1550–2000* (Hilversum: Verloren, 2013), 153; Stephen Snelders, 'Normalization and ambivalence: tobacco in the seventeenth-century Dutch Republic', *Cultural and Social History* **20**, 1 (2023), 13.

[53] H. K. Roessingh, *Inlandse tabak. Expansie en contractie van een handelsgewas in de 17e en 18e eeuw in Nederland*, *A.A.G. Bijdragen*, 20, ((Wageningen, 1976), 209-210; J. J. Herks, *Geschiedenis van de Amersfoortse tabak* (The Hague: Martinus Nijhoff, 1967), 83, 195.

[54] De Vries & van der Woude, *First modern economy*, 327; Morrell, 'Swedish agriculture', 88; Hans-Dieter Loose, 'Das Zeitalter der Bürgerunruhen und der großen europäischen Kriege 1618–1712', in Werner Jochmann and H.-D. Loose, eds, *Hamburg: Geschichte der Stadt und ihrer Bewohner* (Hamburg, 1982), here 328–334; Astrid Petersson, 'Zuckersiedergewerbe und Zuckerhandel in Hamburg. Von den Anfängen bis zum Ende der Kontinentalsperre' in Sven Tode and Frank Hatje, eds, *Hamburger Wirtschafts-Chronik, Neue Folge* (Hamburg, 2000), 53–81.

[55] Alexander Taylor, 'Venting smoke: 'The trade and consumption of tobacco in early modern England and Wales, c.1625-1685' (Unpublished PhD, University of Sheffield, 2017), 33–36.

[56] Staatsarchiv Hamburg, 111-1_60611, Rechnungswesen der Ratsapotheke. Inventare, 1542–1724, *Inventarium Eines Erbaren Rades Apotheken wie dieselbige an Compositen und Simplicien so 1605 18 Februar befunden worden*, 195–219, here 198r, 200v, 202v, 205r; Wallis, 'Exotic Drugs', 31. See also, Magnus von Bromell, *Kort underrättelse, huru man sig förhålla skal, när Gud land och rike med en grymm pestilentialisk fahrsoot straffa täckes. Uppå höga öfwerhetens nådiga befallning upsatt af kongl. collegio medico, i Stockholm åhr 1710*, 29-32 and Andreas Palmcron, *Andreæ Nicolai Sparmans, som, sedan han adlades, blef kallad Palmchron, Korta berättelser, huru man sig emot pestilentzen och rödsoten förwara skal, tilförene tryckte i Stockholm åhr 1638 och 1652; men nu å nyo vplagde i Upsala åhr 1710* (Uppsala, 1710)

[57] Jürgen Schneider and Otto-Ernst Krawehl, eds, *Statistik des Hamburger seewärtigen Einfuhrhandels im 18. Jahrhundert: nach den Admiralitäts- und Convoygeld-Einnahmebüchern, Quellen und Forschungen zur historischen Statistik von Deutschland*, St. Katharinen: Scripta-Mercaturae-Verl (2001), 20. Emma Spary, 'Opium, experimentation and alterity in France', *The Historical* Journal **65** (2022), 54; Wallis, 'Exotic drugs', 39, 42. Thanks to Patrick Wallis for sharing his port book data on opium traffic through London.

[58] Wallis, 'Exotic drugs', 26, 21, 34–7.

[59] De Vries, *Industrious Revolution*, 181–2.

[60] Ibid., 183–4.

[61] Taylor, 'Venting Smoke', 34.

[62] Ibid., 36; Wim Klooster, *Illicit riches: Dutch trade in the Caribbean, 1648-1795* (Leiden, 1998), 189.

[63] E. Baasch, 'Hamburgs Seeschiffahrt und Waarenhandel vom Ende des 16. bis zur Mitte des 17. Jahrhunderts', *Zeitschrift des Vereins für Hamburgische Geschichte* **9** (1894), 295–420, here 401–402.

[64] By 1733 tobacco imports recorded in the Admiralty and Convoy Duties Books amounted to 297,871 Mark Banco. See J. Schneider and O.-E. Krawehl (eds.), *Statistik des Hamburger seewärtigen Einfuhrhandels im 18. Jahrhundert: nach den Admiralitäts- und Convoygeld-Einnahmebüchern* (St. Katharinen, 2001), 535–38; Philipp Rössner, *Scottish trade with German ports: 1700–1770. A sketch of the North Sea trades and the Atlantic economy on ground level* (Stuttgart, 2008), 80, 146–148; M. A. Denzel, 'The seaward import trade in Hamburg according to the entry books of the Admiralty and Convoy Duties (1733–1798)', *Vswg –Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte* **102** (2015), 131–160.

[65] Morrell, 'Swedish Agriculture', 88.

[66] Elizabeth Eisenstein, *The printing revolution in early modern Europe* (Cambridge, 2012), 209–85.

[67] Paul Slack, 'Mirrors of health and treasures of poor men: the uses of the vernacular medical literature of Tudor England' in Charles Webster, ed., *Health, medicine, and mortality in the sixteenth century* (Cambridge, 1979), 240–1, 272–3; Leong, *Recipes*, 163–72.

[68] John Styles, 'Product innovation in early modern London', *Past & Present* **168**, 1 (2000), 148–58.

[69] See for example Elaine Leong, *Recipes and everyday knowledge: medicine, science and the household in early modern England* (Chicago, 2018).

[70] Nicholas Culpeper, *A Physical Directory or a Translation of the London Dispensatory Made by the College of Physicians in London* (1649), revised as Nicholas Culpeper, *Pharmacopeia Londinensis* or *The London dispensatory further adorned by the studies and collections of the Fellows* (1653). Van Diemerbroeck, *Several Choice Histories*; IJsbrand van Diemerbroek, *Traktaat vande peste, in hetwelk deze zeer gevaarlijke ziekte met reden en eigen ervinding bevestigt en naaktelijk vertoont word* (Middelburg, 1671).

[71] Block, *Åtskillige anmärkningar*, p. 7.

[72] Hjalmar Fors, 'Medicine and the making of a city: spaces of pharmacy and scholarly medicine in seventeenth-century Stockholm', *Isis* **107**, 3 (2016), 473–94; Nils Uddenberg, *Lidande och Läkedom. Medicinens Historia fram till 1800* (Lidingö, 2015); Mary Lindemann, *Patriots and paupers: Hamburg, 1712–1830* (New York and Oxford, 1990), 30–2.

[73] Ernst Wilhelm Prangen, *Kurtzer doch gründlicher Bericht/ Wie man sich gegen die gefährliche Seuche der Pest/ Durch Gottes Hülffe/ Nicht nur öffters præserviren/ sondern auch davon curiren könne* (Hamburg, 1711), 10.

[74] Staatsarchiv Hamburg, 111-1_60611, *Inventarium Eines Erbaren Rades Apotheken wie dieselbige an Compositen und Simplicien so 1605 18 Februar befunden worden*, 195–219, here 198r, 200v, 202v, 205r.

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[75] Johann Bökel (Böckel), *Pestordnung der Stadt Hamburg* (Hamburg, 1597), Universitäts- und Landesbibliothek Sachsen-Anhalt, https://nbn-resolving.de/urn:nbn:de:gbv:3:1-106276, 61v-62v; Simon Berchelt, *Om Pestilentzien och hennes orsaker […] Aff lärde mäns böoker vthdragit och förswenskat, och mest sielff vthi åtskillighe tijder förfarit etc.* (Stockholm, 1589).

[76] Palmcron, *Korta berättelser.*

[77] Wallis, 'Exotic drugs', 42; R. Band, *London Tryacle, Being the Enemie to all Infectious Diseases; as may Appeare by the Discourse Following* (1612); Stephen Hobbes, *A New Treatise of the Pestilence* (London, 1603), B2r.

[78] Angelus Sala, *Opiologa. OR, A Treatise concerning the Nature, properties, true preparation and safe vse and Administration of Opium* (London, 1618); Angelus Sala, *Ternarius Ternariorum Hemeticorum Bezoardicorum Laudanorum* (Erfurt, 1630).

[79] John Styles, 'Product innovation in early modern London', *Past & Present* **168**, 1 (2000), 148–58.

[80] George Kendall, *An Appendix to the Unlearned Alchemist, Wherein is Contained the True Receipt of that Excellent* Diaphoretic *and* Diuretic *Pill, Purging by* Sweat *and* Urine; *commonly known by the name of* Matthew's *Pill* (London, 1664), 1; George Starkey, *George Starkey's Pill Vindicated from the Unlearned Alchemist and all Other Pretenders* (London, 1660), 1.

[81] Kendall, *An Appendix*, 3.

[82] Ibid., 38–9.

[83] Thomas Willis, 'Of Opiates, or such Medicines as make a Man sleep' in *DR WILLIS'S Practice of Physick, Being the whole WORKS OF THAT RENOWNED and FAMOUS PHYSICIAN* (London, 1684), 128–33. See also James H. Mills, 'From "Papaber Errat" to "Tincture of Opium": poppies, opiates, and pain in early modern Scotland (ca. 1664–1785)', *The Social History of Alcohol and Drugs*, **35**, 1 (2021), 91–114.

[84] Paul Barbette, *Thesaurus Chirgurgiae* (London, 1687), 343; George Starkey, *Vid ad Vitam: Being a Short and sure Way to a long Life* (London, 1661), 253–4. Barbette's booklet on the plague was first published in Dutch in 1655.

[85] Block, *Åtskillige anmärkningar*, 114.

[86] Gideon Harvey, *TREATISE OF THE Small-pox and Measles; DESCRIBING Their Nature, Causes, and Signs, Diagnostick and Prognostick, in a Different Way to what hath hitherto been known* (London, 1696), 140–1.

[87] Taylor, 'Venting smoke', 257–80; Snelders, 'Normalization', 15–17; Phil Withington, 'Remaking the drunkard in early Stuart England', *English Language Notes* **60**, 1 (2022), 26–7.

[88] Edmund Gardiner, *Physical and Approved Medicines, As Well in Mere Simples, as Compound Observations* (London, 1611), 37–8.

[89] Stephen Bradwell, *A Watchman for the Pest* (London, 1625), 25; James Primrose, *Popular Errours. OR THE Errours of the People IN PHYSICK* (London, 1651), 336. See Ivan Gaskell, 'Tobacco, social deviance and Dutch art in the seventeenth century' in H. Bock and T. W. Gaehtgens (eds), *Holländische Genremalerei im 17. Jahrhundert* (Berlin: Gebr. Mann Verlag, 1987), 120.

[90] For Van Diemerbroeck's reputation see Robert Boyle, *An Essay on the Effect of Even Languid and Unheeded Motion* (London, 1685), 57–8; Thomas Willis, *A Plain and Easie Method FOR Preserving [by God's Blessing] those that are WELL from the Infection of the PLAGUE* (London, 1691), 17, 21; William Salmon, 'Preface' in IJsbrand van Diemerbroeck, *The Anatomy of Human Bodies*, translated by William Salmon (London, 1694); Prangen, *Kurtzer doch gründlicher Bericht*, 10. For scientific constructions of trustworthiness, experience and expertise see Steven Shapin, *A social history of truth: civility and science in seventeenth century England* (Chicago, 1994); Philippa Hellawell, ''The best and most practical of philosophers': seamen and the authority of experience in early modern science', *History of Science* **58**, 1 (2020), 29–35.

[91] Van Diemerbroeck, *Several choice histories*, 34; George Wither, *Britain's Remembrancer Containing a Narration of the Plague Lately Past* (London, 1628), 65; Primrose, *Popular Errours*, 338.

[92] Paul Barbette, *A Treatise of the Plague*, in *Thesaurus chirurgiæ* (London, 1676), 375; Richard Kephale, *Medela Pestilentiae* (London, 1665), 63.

[93] Gideon Harvey, *A Discourse of the Plague* (London, 1665), 22; Kephale, *Medela Pestilentiae*, 15.

[94] Block, *Åtskillige anmärkningar*, 15; Johan Jacob von Döbeln, *Tree inwärtes och ett vthwärts pest-medel, ibland många läkedomar uthwalde och efter hans höggrefl. excellenc felt-marskalckens och gouverneurens nådige befallning, til allmännna [sic] bästa genom trycket til deras bruk beskrefne af Joh: Jacob Döbelius* (Lund, 1711), 8.

[95] Ernst Wilhelm Prangen, *Kurtzer doch gründlicher Bericht/ Wie man sich gegen die gefährliche Seuche der Pest/ Durch Gottes Hülffe/ Nicht nur öffters præserviren/ sondern auch davon curiren könne* (Hamburg, 1711), 10.

[96] Chester Record Office (CRO), ZQSF 59/31, deposition of Randall Chaddock.

[97] Cited in Andrew Rowley, 'How England learned to smoke: the introduction, spread, and establishment of tobacco pipe smoking before 1640', (Unpublished D.Phil, University of York, 2003), 183.

[98] Taylor, 'Venting smoke', 108, 230, 237, 242–3, 269–70.

[99] Norfolk Record Office (NRO), DN/INV 33/115. For the severity of plague in the south-east of England in 1625–6 see Mary J. Dobson, *Contours of disease and death in early modern England* (Cambridge, 1997), 390–91.

[100] Stobart, *Sugar and spice*, 52.

[101] Angela McShane, '"Bad habits and female agency": attending to early modern women in the material history of intoxication' in M. Wiesner-Hanks, ed, *Challenging women's agency and activism in early modernity* (Amsterdam, 2021), 25–38. For revisions of these assumptions in German historiography see Rüdiger Articus, '"Es Hat Dieses Artige Geschlecht Mit Dem Mannsvolck Gleiches Recht" - Frauen Und Tabak', *Knasterkopf: Fachzeitschrift Für Tonpfeifen Und Historischen Tabakgenuss* **17** (2004): 13–19; Otto Ulbricht, 'Tabakkonsum Und Frauen in Deutschland (ca. 1650-1800)', in *Tabak Und Gesellschaft: Vom Braunen Gold Zum Sozialen Stigma*, ed. Frank Jacob (Nomos, 2015), 281–282. For twentieth century marketing see Matthew Hilton, *Smoking in British popular culture 1800–2000* (Manchester, 2000), 138–61.

[102] Virginia Berridge, *Opium and the people: opiate use in nineteenth century England* (London, 1981), xxiv, 21–48.

[103] Anna Davies Barrett and Sarah Inskip, 'Who smokes anymore? Documentary, archaeological and osteological evidence for tobacco consumption and its relationship to social identity in industrial England (AD 1700-1850)' in L. Craig-Atkins & K. Harvey, eds, *The material body: embodiment, history and archaeology in industrializing England, 1700-1880* (Manchester, forthcoming). Thanks to Sarah Inskip for sharing the findings in advance of publication.

[104] De Vries, *Industrious revolution*, 182.

[105] Mikael Bertheau, Philip Tonemar, Anna Bergman, Georg Haggrén, and Mikael Johansson, *'...ena tompt vppa sudra malm belegna vidh stadz garden' Arkeologisk dokumentation av en hamnmiljö med hantverk och handel samt delar av försvarsverk vid Stadsgården på Södermalm : lämningar från tidigt 1300-tal fram till 1933 : Stockholm 103:1, L2015:7789, Stockholms stad och kommun, Stockholms län* (Upplands Väsby, 2024), 103.

[106] Johan Franck and Jacobus O. Hernodius, *De præclaris herbæ nicotianæ sive tabaci virtutibus disputatio. Quam ... sub præsidio m. Johannis Franck, ... publicæ & placidæ disquîsitioni submittit. Jacobus O. Hernodius angermannus. Ad diem 25. Maij horis â 6. matutinis. ...* (Uppsala, 1633).

[107] Block, *Åtskillige anmärkningar*, 97.

[108] J. C. Müller and K. H. Löffler, *Meines Lebens Vorfälle und Neben-Umstände. Erster Teil. Kindheit und Studienjahre (1720–1746)* (Leipzig, 2007), 271–272.

[109] Müller, *Meines Lebens*, 277–78.

[110] Gaskell, 'Tobacco', 127–8.

[111] *A woman seated smoking a pipe* (1650 to 1667) after Gabriel Metsu,1629-1667); previously attributed to Gabriel Metsu. Manchester City Galleries, available at VADS: https://www.vads.ac.uk/digital/collection/NIRP/id/29025/; *An elderly woman smokes a pipe* (17th Century), attributed to Abraham van Dyck (1635-1680), https://commons.wikimedia.org/wiki/File:Abraham_van_Dijck_1635-1672_Cigarette-smoking_older_lady.jpg.

[112] Jan Steen, *The Merry Family* (1668), Rijksmuseum. See https://www.rijksmuseum.nl/en/collection/SK-C-229.

[113] 'Doll's House of Petronnella Dunois' (c. 1676), Rijksmuseum. See https://www.rijksmuseum.nl/nl/rijksstudio/kunstwerken/poppenhuizen/objecten#/BK-14656,0.

[114] McShane, 'Bad habits'; idem., 'Tobacco-taking'.

[115] Jan Olis, *Elegantly Dressed Women drinking and Smoking* (1645), privately owned, view at https://www.wga.hu/html_m/o/olis/index.html

[116] For resonant arguments see Burnard and Riello, 'Slavery', 241–2.

[117] See for example the advice of Richard Barker, *Consilium Anti-Pestilential: OR, Seasonable Advice, Concerning Sure, Safe, Specific, and Experimented Medicines, both for the Preservation from, and Cure of this Present Plague* (London, 1665), 24

[118] For the language of custom in this context see Steven Shapin, 'Why was "custom a second nature"; Withington, 'Intoxicants, addiction', 83–8; Rebecca Lemon, *Addiction and devotion in early modern England* (Philadelphia, 2018), 83–5.

[119] Van Diemerbroeck, *Anatomy of human bodies*, 169, 352.

[120] Elias Beynon, Johann Gufer, and Johann Coler, *Then barmhertige samariten, thet är: Wälment råd och vnderrättelse, huruledes man allahanda menniskians in- och vtwärtes siukdomar och bräckligheter med ringa, oansenliga, doch godfundna läkedomar hielpa kan, them fattigom, och särdeles på landet boendom, til nytto och gagn beskrifwit af Elias Beynon then yngre; samt ett kort vttog af Johan Guffers lilla Hus-apothek af samma innehåll; sidst en liten husläkedom af tobak; item, Coleri vnderwisning om hälsones förwahring i hwar månad om åhret; ther jemte ett nödigt register* (Stockholm, 1727), 244.

[121] Willis, *A Plain and Easie Method*, 20–2.

[122] Willis, 'The several sorts, Preparations and Receipts of Opiates' in *DR WILLIS'S Practice of Physick*, 140.

[123] For his definition of narcotics see Willis, 'The several sorts, Preparations and Receipts of Opiates' in *DR WILLIS'S Practice of Physick*, 140.

[124] Willis, *A Plain and Easie Method*, 20–2.

[125] Willis, 'The several sorts, Preparations and Receipts of Opiates' in *DR WILLIS'S Practice of Physick*, 141.

[126] Bökel, *Pestordnung*, 62v.

[127] Stephen Snelder, 'Intoxicants and intoxication on the Western Front 1914 – 18' in Leo Van Bergen & Eric Vermetten, eds., *The First World War and health: rethinking resilience* (Leiden, 2020), 71–92; Jonathan Jones, 'Opium slavery: Civil War veterans and opiate addiction', *The Journal of the Civil War Era* **10** (2020), 185–210.

[128] For resonant points about different commodities see John Styles, 'Transformations in textiles, 1400–1760' in Paula Hohti, ed., *Refashioning the Renaissance: everyday dress in Europe, 1500 – 1650* (Manchester, 2025), 27–63.

[129] Colin Jones, 'Plague and its metaphors in early modern France', *Representations* **53** (1996), 103.

[130] Anon, 'Part Two' in *The Late Dreadful Plague at Marseilles Compared with that Terrible Plague in London in 1665 … In Two Parts* (London, 1722), 3, 5, 10; Anon, *Of the Use of Tobacco* (London, 1722), B3r.

[131] Anon, *Of the Use*, B2r–B2v.

[132] Ibid., 4, 14–6.