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**'Fumifugium: Or the Inconvenience of the Aer and Smoake of London Dissipated':
Emancipatory social counter accounting in 17th century London**

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3 **'Fumifugium: Or the Inconvenience of the Aer and Smoake of London Dissipated':**
4 **Emancipatory social accounting in 17th century London**
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8 **Abstract**
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10 **Purpose** – This paper extends the nature and relevance of exploring the historical roots of social
11 and environmental accounting by investigating an account that recorded and made visible
12 pollution in 17th century London. John Evelyn's *Fumifugium* (1661) is characterised as an
13 external social account that bears resemblance to contemporary external accounting particularly
14 given its problematising intentionality.
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17 **Design/methodology/approach** – An interpretive content analysis of the text draws out the
18 themes and features of social accounting. Emancipatory accounting theory is the theoretical lens
19 through which Evelyn's social account is interpreted, applying a microhistory research approach.
20 We interpret *Fumifugium* as a social account with reference to the context of the reporting
21 accountant.
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24 **Findings** - In this early example of a stakeholder 'giving an account' rather than an 'account
25 rendered' by an entity, Evelyn problematises industrial pollution and its impacts with the stated
26 intention of changing industrial practices. We find that *Fumifugium* was used in challenging,
27 resisting and seeking to solve an environmental problem by highlighting the adverse
28 consequences to those in power and rendering new solutions thinkable.
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31 **Originality** – This is the first research paper to extend investigations of the historical roots of
32 social and environmental accounting into the 17th century. It also extends research investigating
33 alternative forms of account by focusing on a report produced by an interested party and includes
34 a novel use of the emancipatory accounting theoretical lens to investigate this historic report.
35 *Fumifugium* challenged the lack of accountability of businesses in ways similar to present day
36 campaigns to address the overwhelming challenge of climate change.
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45 **Keywords:** '*Fumifugium*'; Pollution; Social accounting; Emancipatory accounting.
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1. Introduction

In this paper, we contribute to two strands of accounting literature: accounting history and social and environmental accounting. A substantial growth in research into social and environmental accounting has been accompanied by historical studies of, "... how earlier individuals and organisations used accounting to enable, or in some cases ignore, sustainability, and to hold the powerful accountable for their impact on nature" (Carnegie and Napier, 2017, p. 85).

The body of historical research in this area does however remain relatively small, and there have been calls for further exploration of social and environmental accounting (social accounting hereafter)¹ in a historical context (Walker, 2009; Napier and Carnegie, 2001; Parker, 2015; Carnegie and Napier, 2011, 2017). Early studies uncovering the roots of social accounting have focused on the 18th, 19th and 20th centuries (Lewis, Parker and Sutcliffe, 1984; Guthrie and Parker, 1989; Unerman, 2003; Maltby, 2004). Recent research has further peeled back the leaves of time by exploring environmental, ecological and biodiversity elements of alternative accounts from the 18th century (Atkins and Atkins, 2017; Atkins and Maroun, 2020) and the 19th century (Solomon and Thomson, 2009; Atkins and Thomson, 2014; Atkins et al., 2015; Atkins et al., 2017). The approach of these articles has been to identify periods of social and environmental crisis and investigate the (non)role of accounts in these periods. There has been no research, to date, into external environmental accounts arising before the 18th century. With prior research limited to these later centuries (e.g. Guthrie and Parker, 1989; Solomon and Thomson, 2008), in this paper, we turn to the 17th century to explore a social external account from 1661, *Fumifugium: Or the Inconvenience of the Aer and Smoake of London Dissipated* (Evelyn, 1661), produced as part of a political 'campaign' to resolve the growing problem of industrial air pollution in London at that time. We frame *Fumifugium* as an emancipatory social account, with reference to an emancipatory accounting theoretical framework.² Further, this research responds to calls to extend the literature on social accounts that seek to facilitate transformation.³

This paper also contributes to the existing literature by exploring alternative forms of account. Investigation into different forms of accounting particularly from a historical perspective has been called for (Carnegie and Napier, 2017). Research has emphasised a need to widen the notion of the 'archive' beyond the traditional 'obviously accounting-based source materials' (Carnegie and Napier, 1996, p.31) such as original accounts, business records and financial statements. Broadening the definition of 'archival evidence' can extend the area of alternative accounting research, considering forms of social accounts produced by stakeholders other than business organisations (for example, gravestones, Miley and Read, 2017). Accounting processes and practices are not necessarily restricted to modern calculative accounting techniques that claim to

¹ Gray et al. (1987) used the term social accounting/reporting to refer to both social and environmental accounting, providing the following definition of corporate social reporting as, "... the process of communicating the social and environmental effects of organisations' economic actions to particular interest groups within society and to society at large" (p.ix).

² Core papers and foundations of the growing body of work in the area of emancipatory accounting include: Gallhofer and Haslam (1996); Gallhofer and Haslam (1997); Gallhofer and Haslam (2003); Gallhofer, Haslam, Monk and Roberts (2006); Gallhofer, Haslam, and Yonekura (2013); Gallhofer, Haslam and Yonekura (2015); Gallhofer and Haslam (2017).

³ See for example, Brown and Dillard (2013); Gray et al. (2014); Irvine and Moerman (2017); Thompson et al. (2015).

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3 represent and interpret reality, but may also include early forms of numeric, pictorial or narrative
4 recording. Hoskin (2012) discusses early attempts to record information or notation systems such
5 as clay tablet accounting, which along with tokens, animal counting records as early accounting,
6 led to modern day accounting (Bassnett, Frandsen & Hoskin, 2018). Early forms of reporting
7 included recording and counting rather than reporting and *accounting* in the way we know it today.
8 Accounting in the form of ‘naming and counting’ preceded writing (Schmandt Basserat, 1988) and
9 therefore could be seen as restructuring consciousness. Naming and counting may be interpreted
10 as a means of placing value and of ultimately reshaping human thinking (Hoskin, 2012). The
11 potential for accounting to shake or even shatter the *status quo* by creating and disseminating an
12 alternative view of reality is widely recognised e.g. cartography and its (mis)representation of
13 different socio-political ‘realities’ (Napier, 2011). In a similar way, naming sources of pollution
14 and documenting their impact could be perceived as precursors to environmental reporting. By
15 assessing and recording pollution impact and naming and shaming polluters, well before the
16 development of corporate environmental reporting, an external party may have been reshaping
17 human thinking regarding the environment and thus restructuring societal consciousness regarding
18 pollution and its impacts. As well as taking different forms, accounts are not necessarily produced
19 by business organisations alone, social accounting is not solely the domain of businesses reporting
20 on themselves but extends to the production of accounts by external interested parties,
21 stakeholders, who are concerned about the social and environmental impacts of business.
22 Accounting may be viewed not always as what names and counts but also as an actor which
23 through its naming and counting reshapes human thinking and action (Hoskin, 2012). In this paper,
24 we view accounting as processes and practices that are not restricted to business organisations and
25 calculative techniques but include recording through numbers, pictures or narrative and simply
26 ‘counting’ (Napier, 2011). As emphasised previously, “...do not assume accounting is just
27 ‘calculation’ (Hoskin, 2012) and more recently, ‘...As social practice, accounting emerges deeply
28 embedded and pervasive in organisations and societies’ (Carnegie, et al, 2020). Similarly, we
29 would not expect 17th century environmental accounting to take the same form as contemporary
30 practices.
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37 Consequently, several studies have focused on external social accounts which aim to problematise
38 social and/or environmental issues and provide potential solutions (Harte and Owen, 1987;
39 Medawar, 1976; Cooper et al., 2004; Dey, 2003; Gray et al., 1997; Solomon and Thomson, 2009).
40 Solomon and Thomson (2009) argue that the problematising intentionality within these accounts
41 represents an important element in the understanding of social accounting. Their paper analysed a
42 19th-century engineer’s report on river pollution as an early form of social account. Carnegie and
43 Napier (1996) suggest that the use of diaries, as well as other sources, represents an extension of
44 traditional accounting and accountability research. Diaries give insight to personal perspectives on
45 situations and contexts (McBride, 2020). Gilbert White’s nature diaries have been identified as
46 early accounts of biodiversity and extinction accounting which also include problematisation of
47 air pollution (Atkins and Maroun, 2020). Letters written by the artist, writer and social activist
48 William Morris, concerning woodland conservation, are interpreted as an early form of
49 environmental audit (Atkins and Thomson, 2014), and identified as an isolated exploration of early
50 accounts from a sustainability perspective (Carnegie and Napier, 2017). Similarly, the travel
51 writings of William Gilpin provide early narrative accounts of industrial smoke and possibly the
52 first example of impression management around pollution (Atkins and Atkins, 2017).
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Accounting as an emancipatory tool and the emancipatory accounting ‘project’ are significant themes in the accounting academic literature. We characterise Evelyn’s *Fumifugium* as an early example of an external problematising social account and one that has emancipatory intentionality. *Fumifugium* contains a number of inter-connected themes. These include: problematisation of coal burning, impact of pollution (aesthetic, odour, building damage, human health, animal health, flora and fauna), naming and shaming of businesses, and providing potential solutions (relocation of businesses, plantations of trees and aromatic shrubs). This account contains an early proposal for bi-remediation and environmental offsetting for the, “*improvement and melioration of the aer about London*” for the damage arising “*from some few particular Tunnells and Issues, belonging only to Brewers, Diers, Lime-burners, Salt, and Sope-Boylers, and some other private Trades*”. *Fumifugium* challenged the lack of accountability of 17th century businesses and poor environmental governance by providing an account of, and solutions to, industrial pollution, in ways similar to present day campaigns attempting to deal with the global challenge of climate change.

In summary, the paper: (i) extends research into the historical roots of social accounting into the 17th century; (ii) extends research into alternative forms of account, focusing on a report produced by an interested party; (iii) interprets the report through the lens of emancipatory accounting theory, and (iv) assesses the emancipatory impact of this social account both at the time it was written and over the ensuing centuries. This paper is structured as follows. In the next section, we outline and develop our theoretical framework of emancipatory social accounting, derived from the emancipatory accounting literature. In section three, we explore the historical context in which *Fumifugium* was placed. Section four provides a cameo of Evelyn, the accountant, and discusses his problematisation and desire to produce an emancipatory account. Section five outlines our research method and *Fumifugium* is analysed in section six. The paper concludes with a discussion in section seven.

2. Interpreting *Fumifugium* through a theoretical lens of emancipatory social accounting

This paper interprets *Fumifugium* as a form of emancipatory social accounting from the 17th century produced by an ‘accountant’ external to the organisations being called to account. To lay the foundations of our analysis, we consider definitions of social accounting, such as, “... ostensibly an accounting challenging conventional accounting social accounting has been delineated as something of a compound fusion” (Gallhofer and Haslam, 2003 pp.112-113). In the social accounting literature, corporate social reporting (CSR), is defined as, “... all possible forms of accounting – or what ‘accounting would look like if it were not limited to a very particular set of four characteristics” (Gray et al., 1996, p.82).⁴ This understanding of social accounting liberates us, enabling an exploration of the holding of companies to account for social and environmental impacts through alternative means, by alternative accountants from those within a conventional accounting frame of reference. Further, social accounting is considered to have a progressive edge, being differentiated in a complex manner from conventional (financial, economic) accounting by content, form, role and purpose (Gallhofer and Haslam, 2003). Irvine and Moerman (2017) demonstrate the importance of social accounts in bringing debate into the public sphere, regardless of whether this leads to a change in behaviour. This paper explores emancipatory elements in

⁴ Laughlin and Gray (1988) defined these four characteristics as organisational focus, economic events, financial description and narrowly defined users.

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3 *Fumifugium*, by calling companies to account for negative externalities, there seems
4 transformational intentionality. A core text in the development of emancipatory accounting theory
5 focuses on the late 19th century and the mobilising of accounting by socialist agitators (Gallhofer
6 and Haslam, 2003). The authors also discuss how businesses began to be called to account for their
7 social responsibility in the 1960s and 1970s, “The sort of questioning of business ... translated in
8 part into calls for more openness and transparency, coming to pressurise government and the
9 accountancy profession (subter) as well as business ... calls for more openness and transparency
10 were in part being translated into calls for social accounting” (Gallhofer and Haslam, 2003, pp.111-
11 112). We interrogate Evelyn’s *Fumifugium* in order to identify similar emancipatory
12 characteristics from several hundred years earlier.
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15 16 ***External Problematising Accounts, Social Accounts and Alternative Accounts***

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18 Research in social and environmental accounting is often interested in accounting that aims to
19 promote change to enhance the environment (e.g. Bebbington and Larrinaga, 2014; Gray, 2002;
20 Russell, Milne and Dey, 2017; Vinnari and Lane, 2017). Social accounts or “representations of
21 organizations, industries or governance regimes, produced by civic society groups in order to
22 rectify a state of affairs that is considered hateful or otherwise undesirable” (Vinnari and Laine,
23 2017, p. 1), have been suggested as a source of information seeking change (Dey, 2003; Gallhofer
24 et al., 2006; Spence, 2009; Dey et al., 2011). Alternative forms of giving an account counter the
25 usual forms of accounting generated by organisations and provide a different perspective (Hines,
26 1988, Milne and Gray, 2013). These social accounts have emancipatory potential (Gray, et al,
27 2014).
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31 Some researchers have attempted to provide theoretical frameworks to explain external accounting
32 practices.⁵ These researchers seek to analyse social accounting technologies that are externally
33 produced, intended to critique or problematise institutional conduct from the perspective of
34 oppressed social groups or ecological systems. These problematising external accounts have been
35 referred to previously by a number of different terms, including ‘social audits’, ‘counter accounts’,
36 ‘silent accounts’, ‘social accounts’, ‘reporting-performance portrayal gap analysis’,
37 ‘deindustrialisation audits’ and ‘shadow accounts’. Indeed, some social accounts may have
38 specific terminology and may differ in their generation. For example, a “Silent Report” is collated
39 from the information published by the organisation, whereas a “Shadow Report” is compiled from
40 sources external to the organisation (Dey, 2007). However, these social accounts share a number
41 of important characteristics in that they systematically create alternative representations,
42 performative accounting entities, new visibilities and knowledge of existing situations in order to
43 problematise and act as a catalyst for change and intervention.
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47 Lehman et al. (2016) suggest that social accounts may provide challenges to official positions, in
48 giving voice to new knowledge and other points of view. However, although there has been clear
49 interest in this area (e.g. Apostol, 2015; Dey et al., 2011; Gallhofer et al., 2015; Gray et al., 2014;
50 Lehman et al., 2016; Thomson et al., 2015), much remains to be learnt about the use and effects
51 of social accounts. There have been calls for further research into the conditions in which social
52 accounts could lead to the required change (Brown et al 2015; Russell, Milne and Dey, 2017) and
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55 ⁵ See for example, Cooper et al. (2005); Bebbington and Thomson (2007); Solomon and Thomson (2008); Atkins
56 and Thomson, 2014; Atkins et al., 2015.
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for studies of the efficacy of strategies of different groups, in differing stages and contexts (Russell et al, 2017; Thomson et al., 2015).

Dey et al (2011) identify that contemporary external accounting includes accounts produced by organisations including campaigning NGOs⁶ (see, for example, Friends of the Earth, 2003; Moerman and Van der Laan, 2005; Oxfam, 2002) with their representation of the social and environmental impacts of others. The audience for these accounts was not only the organisation directly causing the problematic impacts, but included political institutions, other stakeholders, the media and sections of the general public (Gray et al , 1997; Dey, 2003; Harte and Owen, 1987; Medawar, 1976; Cooper et al., 2005, Collison et al., 2007). These ‘shadow accounts’ may themselves be subject to problematisation by those that they criticise, in an attempt to regain social legitimacy (Adams, 2004). Dey et al. (2010) also include in their typology of external accounts other accounting mechanisms such as non-fictional books published by social activists and campaigners (e.g. Klein, 2001, Lubbers, 2003, Monbiot, 2001; Stiglitz, 2003).

Dey et al. (2010, 2011) identify these external accounts as accounts that measure, make visible, represent and communicate evidence in a contested political arena and therefore any evaluation of external accounting must recognise this contest for power and the intention to influence the decision of those in power. External accounts attempt to challenge, problematise and de-legitimate those currently in a dominant position of power. Implicit in that observation is that these accounts will be prepared by, or on behalf of, less powerful social groups and/or the natural environment. More recently, the concept and tool of social accounting has been applied in terms of human rights through the use of immigrant narratives as social accounts that illuminate the impact of neoliberal immigration policies on their lives (Lehman et al., 2016). Similarly, social accounting has been applied to bring into the open animal rights issues using contrasting accounts of pig farms which contrast starkly with more ‘formal’ accounts of animal farming (Laine and Vinnari, 2017). Gray et al. (2014) consider ways in which social accounting may be reframed to produce new accounts and alternative forms of account. These ideas resonate with our analysis of *Fumifugium* as an emancipatory social account that problematises and illuminates pollution in 17th century London. We now discuss the historical context within which *Fumifugium* was created.

3. Exploring the Historical Context: Evelyn and 17th Century London

1661, the year John Evelyn wrote *Fumifugium*, was the first year of the Restoration period in England. Charles II had returned as King to great celebration.⁷ In his diary, on 29th May 1660, Evelyn wrote,

“This day, his Majesty, Charles the Second, came to London, after a sad and long exile and calamitous suffering both of the King and Church, being seventeen years. This was also his birthday, and with a triumph of above 20,000 horse and foot, brandishing their swords, and

⁶ Non-governmental organizations (NGOs) were first called this in Article 71 of the Charter of the United Nations when formed in 1945. Although there is no formal definition, they are normally non-profit organisations that operate independently of any government (although they can receive government funding) with a purpose to address social or political issues.

⁷ His return was recorded in a pamphlet, ‘England’s Joy or a Relation of the most remarkable passages, from his Majesty’s arrival at Dover, to his entrance at White-Hall’ (1660).

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3 shouting with inexpressible joy; the ways strewed with flowers, the bells ringing, the streets hung
4 with tapestry, fountains running with wine; the Mayor, Alderman, and all the Companies, in their
5 liveries, chains of gold, and banners” (The Diary of John Evelyn, published in 1966).
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8 Restoration of the King was seen as a way to end political chaos. In the Interregnum (1649-1660)
9 when the monarchy was overthrown, England had been governed by Oliver Cromwell, Lord
10 Protector of the Commonwealth or Parliament. After his death, England had fallen into chaos with
11 increasing financial crisis and disputes between the administration and military, so Charles II was
12 invited to end his exile (Harris, 2005). Evelyn bears witness to ‘calamitous suffering’ during the
13 Interregnum in his diary quoted above. The country’s economy began to recover, and as the
14 national population growth slowed, so did the high inflation of previous years (Bucholz and Ward,
15 2012).
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18 At this time London, the subject of John Evelyn’s *Fumifugium*, was a large and important capital
19 city, with only Paris and Constantinople being larger, although their population growth was
20 declining, unlike London⁸. As a significant port city, London boasted a population of around
21 300,000, close to a sixteenth of the population of the country (Picard, 1997). With the economic
22 crisis, expansion in the general population leading to a lack of work and then a series of bad
23 harvests in the late 1590s (Bucholz and Ward, 2012), many people had moved to London, mostly
24 from other parts of England, but some from the continent (Porter, 2012) to seek work.
25 Overcrowding was a substantial problem, with so many people living and working in London,
26 leaving rubbish on the streets or throwing it into the river Thames. The city and the river were
27 dirty; it was easy to get sick. Diseases spread quickly, with everyone living in close proximity to
28 one another (Ackroyd, 2001). At the end of winter in 1664-5, the bubonic plague broke out in one
29 of the poorer areas of London. It was highly contagious and when the epidemic ended at the end
30 of 1665, more than 80,000 people had died, greater than sixteen percent of the city’s population
31 (Appleby, 1980). However, this was not the only cause of deaths at the beginning of the 1600s, as
32 Graunt (1662) wrote following *Fumifugium*, overcrowding and smoke, made London unhealthy:
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36 ‘I considered whether a City, as it becomes more populous, doth not, for that very cause, become
37 more unhealthful . . . London now is more unhealthful than heretofore; partly for that it is more
38 populous, but chiefly because I have heard, that sixty years ago few Sea Coals were burnt in
39 London, which are now universally used. . . . People cannot at all endure the smoak of London, not
40 only for its unpleasantness but for the suffocation which it causes.’ (p. 394).
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43 We now turn to exploring John Evelyn in order to develop a picture of the ‘accountant’ and his
44 problematisation, intentionality and desire to produce an emancipatory account.⁹
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47 **4. John Evelyn: a brief biography and his *Fumifugium***

48

49 John Evelyn was born in Wotton near Dorking, Surrey on 31st October 1620 and died on 27th
50 February, 1706. He was educated at Balliol College, Oxford, where he would have learned in
51 Latin, about the liberal arts - arithmetic, geometry, astronomy, music theory, grammar, logic, and
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54 ⁸ By 1700 London was larger than Paris and by 1750 larger than Constantinople (Picard, 1997).

55 ⁹ This is in keeping with a micro historical, or in this case biographical approach to accounting history research,
56 where exploring and understanding the accountant is part of the research process (Carnegie and Napier, 2017).
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3 rhetoric. He travelled widely throughout Holland, Flanders, France, Italy and Switzerland as a
4 young man (The Illustrated Chambers's Encyclopaedia, 1904). "He was the model of a true
5 English gentleman – pious, honourable, and exerting himself at once to maintain sound morals and
6 to promote science. His memoirs present a lively picture of the dissolute age in which he lived;
7 and he sought to draw men away from the sink of corruption by encouraging them to plant and
8 cultivate their estates" (Cassell's History of England). Whilst Evelyn is most celebrated for his
9 journals documenting the plague and the Great Fire of London, *Fumifugium* has been widely
10 recognised as one of the first rational, reasoned and scientific accounts of pollution (Jenner, 1995,
11 Sinclair, 1973). It was a campaigning pamphlet that was presented to King Charles II on 13th
12 September 1661 soon after the King's coronation in April of that year.
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16 In the 17th century, with increased literacy and inexpensive printing, pamphlets were often
17 produced on religious, political or other topics of interest. These were sold cheaply in order to find
18 a wide audience. Over the course of the 17th century, these pamphlets became the most important
19 print medium of their time in England, France, the Netherlands and elsewhere (Verhoest, 2019).
20 Pamphlets were an effective way of communicating and persuading in this era, they were
21 influential in creating debate, often leading to pamphlet wars (Holstun, 2013) and in forming moral
22 and political opinion (Raymond, 2003). Indeed many of the pamphlets were of a political genre
23 that would not have been possible just a short time before (Peacey, 2004).
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26 Evelyn took it upon himself to write and present *Fumifugium* to Charles II after observing a
27 'pernicious nuisance' (dedicatory, p. III), a cloud of smoke that pervaded all the area, at the royal
28 palace of Whitehall. The King was "much gratified by it" and authorised the pamphlet to be
29 published by Royal Command (Diary, 14th September, 1661), thus giving the royal seal of approval
30 to the work. The pamphlet was 26 pages long, with an additional 2 prefaces, a 5 page Dedicatory,
31 and a 'To the Reader' of 4 pages, being published in London. The second preface dedicated to the
32 reader, is written to the general public and Evelyn hopes that his implementation of his proposals
33 'may render the People of this vast City, the most happy upon Earth' (To the reader p 2). Literacy
34 in 17th century England was partial, this varied with gender, economic and social position, with
35 Londoners being generally more literate, this was transitioning to widespread literacy (Cressy,
36 1977), and pamphlets helped individuals to a new less elitist culture of reading (Verhoest, 2019).
37 The main aspects of *Fumifugium* were drafted as a bill to be presented to Parliament in 1662¹⁰.
38 Evelyn "received of Sir Peter Ball (the Queenes Attourney) a draught of an Act against the
39 nuisance of the smoke of Lond , to be reformed by removing severall Trades, which are the cause
40 of it, and indanger the health of the King and his people &c; which was to have beene offered to
41 the Parliament, as his Majesty commanded"(Diary, 11 January, 1662), however the bill was not
42 enacted. Nevertheless, many aspects of the bill were incorporated through different governing
43 mechanisms, particularly in the rebuilding of London after the Great Fire. These included the
44 incorporation of urban green spaces, a green belt and relocating polluting industry away from the
45 centre of London.
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50 Evelyn observed that 'almost half of them perished in London died of physical and pulmonary
51 distempers, the inhabitants are never free from coughs' (*Fumifugium*, 1661). Evelyn had travelled
52 and lived in the Netherlands, France and Italy during the Interregnum and considered the more
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55 ¹⁰ Evelyn's diary confirms 1st October 1661, that the King 'commanding me to prepare a Bill against the next
56 session of Parliament, being, as he said, resolved to have something done in it' (Evelyn, 1661 p.350).
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3 modern towns and cities of the Continent to have superior air to London (Evelyn, 1882), these
4 countries did not use coal at this time (Nef, 1977). In *Fumifugium*, he complained of the pollution
5 of industrial producers, although some of the smoke pollution in London was from the inhabitants'
6 domestic fires, as sea coal¹¹ was sulphurous and acrid (Picard, 1997). Scientific research has
7 identified that sea coal would have released sulphur dioxide, carbon dioxide, nitric oxide, soot and
8 particulates of organic matter (Jacobson, 2012). Much of the coal burned in London was for kilns,
9 where limestone was converted into lime for mortar, for building. Wood was initially preferred for
10 the domestic market but between 1540 and 1640 the prices of firewood tripled compared with
11 other produce. This may have been because forests had been decimated during the Interregnum
12 (Albion, 1952). Evelyn also sought to address this problem by producing another pamphlet, *Silva*,
13 in which he makes recommendations for restoring ancient forest and oaks in particular. Due to the
14 shortage of wood, coal started to be used for household fires too (Te Brake, 1975). The change
15 from wood to coal in England and then Scotland, between 1550 and 1700 led to new methods of
16 manufacturing and subsequently to the Industrial Revolution, thus changing the economic history
17 of Britain, then the rest of Europe and to the rest of the world (Nef, 1977).
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22 Despite the fact that cities in England were very smoky by the end of the 1600s, there were not
23 many that considered coal smoke an issue and the word pollution was not used in reference to it.
24 Even though Evelyn raised the issue in *Fumifugium* and despite his impassioned plea, little was
25 done for the next two hundred years (Thorsheim, 2006)¹².
26

27
28 The early 1660s witnessed immense scientific progress (Wootton, 2015), inspired by the Royal
29 Society, founded in 1660 (Gascoigne, 2019). However, scientific understanding of ailments was
30 rudimentary and often spells and charms were used to ward off illnesses (Picard, 1997). Hygiene
31 was not really considered, as people did not appreciate that illnesses were spread by germs, which
32 thrived in the unclean conditions. Even though hand washing was usual even from the Middle
33 Ages, concerns were with skin complaints, such as scabies rather than diseases. In the time of the
34 restoration, hand washing was focused around eating, with hands washed before, after and even
35 during meals (Smith, 2007). Samuel Pepys records in his diary, that a meal with his uncle and aunt,
36 was 'against my stomach out of the offence the sight of my aunt's hands gives me' (Pepys, 1st
37 January, 1664). Overcrowding and bad air in cities were believed to lead to disease and death and
38 were recommended against in the health books of the day (Wear, 2000). Many believed that
39 Miasma, a harmful gas, or a sort of bad air, from rotting matter, caused diseases such as cholera,
40 malaria or the 'black death' (Thorseim, 2006). Plants and herbs were often used as medicines
41 (Laroche, 2009). The herbs were administered by people themselves (Culpeper, 1653), often by
42 the women of the household (Leong, 2014). Many plants had come from overseas where England
43 traded, from Ceylon, Java and the East Indies. Many plants from China had a long history of herbs
44 for medicinal use, but some were indigenous (Willes, 2011). Indeed, part of Evelyn's solution for
45 the smoke eradication in London involved the planting of herbs and other plants (*Fumigugium*,
46 1661).
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51 ¹¹ 'Sea' coal, as it was transported from Newcastle by sea.

52 ¹² It is 1851 before the City of London have authority to fine factory owners for excessive smoke within the 'Square
53 Mile' and until 1853 for the Smoke Nuisance Abatement (Metropolis Act) with power to fine industries in the
54 Metropolitan area. Then until 1863 before the Alkali Act sets up the first pollution-control agency in the world
55 (Thorsheim, 2006).
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5 *Fumifugium* was published in a critical period of English history following the end of perhaps the
6 most radical political ‘experiments’ in England, the English Commonwealth or Interregnum and
7 the restoration of the monarchy. The Restoration was a period of great social, economic, scientific
8 revolution, marked by the birth of the Royal Society¹³ (of which Evelyn was a founder member)
9 and arguably modern science. Evelyn was at the centre of many of these reform movements and a
10 trusted and powerful advisor to King Charles II. Politically Evelyn was a royalist (Jenner, 1995)
11 and had fought for the restoration of the monarchy, he viewed the restoration as a golden
12 opportunity for progress. Evelyn was later to become disillusioned with King Charles II and the
13 profligacy and trivial nature of his court, however he remained an influential member of the Royal
14 Society (Hunter, 1982) and continued to campaign to reform many aspects of life in 17th century
15 England (e.g. Evelyn 1664), which he recorded and published in a series of diaries (Evelyn, 1882).
16 Evelyn could clearly be categorised as a social activist and reformer who made extensive use of
17 ‘accounts’ as creating and disseminating alternative views of reality, both to problematise and to
18 proffer solutions. This reforming/activist function of accounting is widely recognised in the critical
19 accounting literature and in the accounting history literature with accounting potentially carrying
20 emancipatory power (Gallhofer and Haslam, 2003). There is an ideological and performative
21 aspect of *Fumifugium*. Indeed, Evelyn’s *Fumifugium* shares many similar characteristics with
22 accounts by social activists with emancipatory intentions as an account which records and presents
23 information previously repressed or represented in a different manner. From the 13th century there
24 had been complaints about smoke by nobles and others visiting cities, but the generally proposed
25 solution was reverting to previous fuels, a proclamation of 1307 bans the use of coal and a return
26 to brushwood or charcoal. *Fumifugium* was the first serious written work related to air pollution
27 (Brimblecombe, 1976). This way of accounting has been identified in a number of contexts in the
28 critical accounting literature (Apostol, 2015; Dey et al., 2011; Gallhofer et al., 2015; Gray et al.,
29 2014; Lehman et al., 2016; Russell, et al. 2017, Thomson et al., 2015), for example, the
30 presentation of information relating to the poor by Booth helped to raise awareness and interest in
31 the impoverished elderly at the time (Crowther, 1983).
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36 5. Research method

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39 We conducted an interpretive content analysis of *Fumifugium* in order to interrogate the text and
40 draw out themes and features of social accounting. A similar approach was applied to analyzing
41 the engineer’s report regarding pollution of the River Wandle in the 19th century (Solomon and
42 Thomson, 2008). The text of *Fumifugium* was analysed through careful reading and re-reading in
43 order to extract themes relating to the content, purpose and proposed solutions of the
44 environmental narrative. In our discussion of the analysis we also draw on Evelyn’s diary as a
45 source of further information. We apply emancipatory accounting theory as a theoretical lens
46 through which we interpret Evelyn’s social account. We also draw on the microhistory or even
47 biographical research method increasingly used in accounting history and outlined in Carnegie and
48 Napier (2017), with theory used to provide a conceptual framework for historical narrative
49 (Carnegie, McBride, Napier and Parker, 2020), to interpret *Fumifugium* as a social account with
50 reference to the character and life of the accountant himself. Atkins and Maroun (2020) adopted a
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54 ¹³ The Royal Society, was founded in London, in 1660 and was granted a charter by King Charles II. Its stated
55 purpose is ‘to recognise, promote and support excellence in science.’ and ‘encourages the development & use of
56 science for the benefit of humanity.’
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3 similar approach to reading and analyzing the nature diaries of Gilbert White from 18th century
4 England.
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6 Recent literature that seeks to identify emancipatory elements in published accounts and
7 disclosures assisted us in analysing Evelyn's *Fumifugium* in order to extract emancipatory
8 elements. We drew inspiration in our analysis from Zhao and Atkins (2021) who extracted isolated
9 examples of emancipatory environmental and ecological accounting, characterised by actions
10 reported that were transformational in effect. Further, we referred to Maroun and Atkins (2018) as
11 a basis for the identification of emancipatory elements in *Fumifugium*, as their paper extracted
12 examples of emancipatory reporting by South African listed companies.
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16 17 **6. Analysing *Fumifugium* as an emancipatory social account** 18

19 Our analysis allowed us to identify several themes contained in the text, which resonate with the
20 academic literature on emancipatory social accounting, and define the negative externalities
21 arising from early industrial pollution. Specifically these are: the accountant's aim and audience;
22 Evelyn's problematisation; naming and shaming of polluting companies; aesthetic impact of the
23 pollution; the odour of the pollution; damage to buildings and human health arising from the
24 pollution; impact on flora and fauna. We then discuss Evelyn's proposed solutions.
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27 *Accountant's aim and audience* 28

29 Evelyn, as a 17th century social accountant, provided a frontsheet and two introductions to his
30 external social account. The frontsheet and the first introduction are dedicated to the King's Most
31 Sacred Majesty. The second is an introduction to 'the reader'. It is interesting that in writing and
32 presenting his work, Evelyn was keen to consider and address his audience. Indeed, he states
33 explicitly that although the account is addressed to the King, the intended readership is far wider,
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36 *"... as it is of universal benefit that I propound it; so I expect a civil*
37 *entertainment and reception"* (Evelyn, 1661, p.11).
38

39 Evelyn emphasises his dissatisfaction with the,
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41 *"...small advance and improvement of Publick Works.... "* (Evelyn, 1661, p.11)
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44 especially in comparison to improvements in other countries (for example he mentions Paris,
45 France).
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47 *Problematisation* 48

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50 In his narrative, Evelyn identifies the nature of the environmental problem thereby problematising
51 pollution and its impact on society and nature, he identifies that the issue is with the sea coal
52 (Evelyn, 1661, 17), which was used at the time in industrial processes. Suggesting that in the large
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3 cities there is a necessity to breathe the arsenical vapour from this sea coal (Evelyn, 23)¹⁴
4 particularly in London (Evelyn, 1661, 17-18)¹⁵. We can see Evelyn's evident outrage at the
5 pollution and those who produced it by his capitalising of sea coal,
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8 “...if this good City justly challenges what is her due, and merits all that can be said to
9 reinforce her Praises, and give her Title; she is to be relieved from that which renders
10 her less healthy, really offends her, and which darkens and eclipses all her other
11 Attributes. And what is all this, but that Hellish and dismall Cloud of SEA-COALE?”
12 (Evelyn, 1661, p.17).
13

14
15 For a 17th century man holding a prominent position in society, Evelyn's language here is quite
16 extreme, expressing strong emotion: a true environmentalist and activist! In seeking to interpret
17 *Fumifugium* as a social account, we identify various attributes that align with those of social
18 accounting. As an account it goes beyond a focus on financial profit of the businesses mentioned,
19 or their benefits for their owners being produced for the King but also for the inhabitants of
20 London, resonating with one of the characteristics of social accounting, that it is intended for “the
21 public at large” (Gallhofer and Haslam, 2003, p.113). Of course, shareholder ownership in the
22 modern sense and limited liability were not established for another 300 years.
23

24
25 Picking up on Gallhofer and Haslam's definition of social accounting discussed above, we seek to
26 identify the content, form, role and purpose, so as to interpret *Fumifugium* as a social account and
27 find it: incorporates pollution details, identifying negative externalities into the content; uses a
28 report addressed to the King as the form of accounting; plays an awareness-raising role for the
29 betterment of human health, and; has an emancipatory purpose of pollution reduction and
30 improving lives in London. *Fumifugium* has a radical, ideological orientation and is emancipatory
31 in intentionality, from the perspective of Gallhofer and Haslam's (2003) schema for defining what
32 constitutes a social accounting focus. *Fumifugium* sets out to elicit transformation of London,
33 calling businesses to relocate, or be relocated, with no apparent regard for the financial
34 considerations or economic concerns of those businesses. *Fumifugium* is consistent, in part, with
35 the following description of a radical social accounting, as being, “... concerned to contribute to a
36 radical critique of the socio-political order, including its business organisations and their activities,
37 and to strive for radical democratic and socialistic development” (Gallhofer and Haslam, 2003,
38 p.114).
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42 ***Naming and shaming***

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44 Earlier research has identified elements of naming and shaming in the emancipatory writings of
45 Morris (Solomon and Thomson, 2009). Evelyn's identification of specific polluters is similar to
46 the way in which Morris in his environmentally evocative and varied works pinpointed ‘Profit’ as
47 culpable for aesthetic impacts of business activity. Evelyn specifies the types of industrial producer
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51 ¹⁴ “What if there appear to be an Arsenical vapour, as well as Sulphur, breathing sometimes from this intemperate us
52 of Sea-Coale, in Great Cities?” (Evelyn, 1933, p.23).

53
54 ¹⁵ “...since this is certain, that of all the common and familiar materials which emit it, the immoderate use of, and
55 indulgence to Sea-coale alone in the City of London, exposes it to one of the fowlest Inconveniences and
56 reproaches, than possibly befall so noble, and otherwise incomparable City” (Evelyn, 1933, p.17-18).
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3 which are responsible for the pollution of London's air, he lists all the main smoke producing
4 industries prevalent in London at the time¹⁶, brewers, diers, lime burners, salt and soap boilers and
5 some other private trades (Evelyn, 1661, 18)¹⁷.
6

7
8 *"...wrapped in a horrid Cloud of this Smoake, issuing from a Brew-house"*
9 *(Evelyn, 1661, p.20).*
10

11 He describes in great detail how the smoke appears, its thickness and its persistence, as well
12 as the impact of the body of smoke. Evelyn also refers to one particular lime kiln close to
13 the Falcon (Glassworks) which is likely to be well-known to his contemporary readers,
14

15
16 *"...the City has appeared a Sea where no Land was within ken; the same*
17 *frequently happens from a Lime-kelne on the Banke-side neer the Falcon,*
18 *which when the Wind blowes Southern, dilates itself all over the Poynt of the*
19 *Thames..." (Evelyn, 1661, p.20).*
20

21 Manufacturing at the time was still made up of many small independent businesses, so naming and
22 shaming would by necessity be on the basis of the trades carried out. However, in bringing these
23 observations to a wider audience, *Fumifugium* fits into the category of social accounts produced
24 by pressure groups and social activist groups being, "... suggestive of radical orientation and
25 emancipatory intent" (Gallhofer and Haslam, 2003, p.115).
26
27

28 *Fumifugium* represents a social information systems type activity (Gallhofer and Haslam, 2003).¹⁸
29 Evelyn's identification of specific businesses as polluters demonstrates that *Fumifugium* is a social
30 account, providing an alternative reality around industrial activity, likely very different from how
31 the early industrialists, making their fortunes from these businesses, would have viewed their
32 companies,
33
34

35 *"...the Columns and Clouds of Smoake, which are belched forth from the sooty Throates*
36 *of those Works, are so thick and plentiful, that rushing out with great impetuosity, they*
37 *are capable even to resist the fiercest winds, and being extremely surcharg'd with a*
38 *fuliginous Body, fall down upon the City, before they can be dissipated, as the more thin*
39 *and week is" (Evelyn, 1661, p.30, emphasis added).*
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41

42 Again, Evelyn's language expresses strong emotion, anger and affront. This social account is
43 imbued with passionate narrative, which we perceive he employs both to create an effect on the
44 reader but also as a means of expressing his genuine feelings. In a period before unions,
45 environmental NGOs and other potential social activists, Evelyn was a sole actor in writing up this
46 social report, the first on air pollution (Brindlecombe, 1976), he was in this case, a social
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48

49 ¹⁶ Earle (1989) notes London industries with textiles and clothes; the building trade; metalworking and leather
50 manufacture as the largest industries, followed by woodworking, coachmaking, hatmaking, baking and shipbuilding.

51 ¹⁷ "...from some few particular Tunnells and Issues, belonging only to Brewers, Diers, Lime-burners, Salt, and
52 Sope-Boylers, and some other private Trades, One of whose Spiracles alone, does manifestly infect the Aer, more
53 than all the Chimnies of London put together besides." (Evelyn, 1933, p.18).
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55 ¹⁸ Gallhofer and Haslam (2003) draw here on Jeremy Bentham's reference to unofficial publicity systems that
56 challenge official publicities, which again affirms *Fumifugium* in this light (Bentham, 1843).
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accountant, taking on the role of a pressure group, harnessing his contacts with the King and other powerful actors, to achieve his emancipatory intent. Moving on from contemporary discussion around air and smoke¹⁹ within the confines of the Royal Society (Brimblecombe, 1978a) and other learned institutions (Jenner, 1995) and individuals (Brimblecombe, 1978b) Evelyn brings these discussions to a wider public. Whilst he achieved raised awareness around pollution in London, for example, his comments within *Fumifugium* related to Bills of Mortality (p.12) were followed by a statistical analysis of those bills by a London draper, John Graunt (1662) showing impact on health from air pollution, Evelyn did not gain the transformational change for which he was hoping. He was more successful with his other report *Silva*, which was enacted, although business interests were aligned with his suggestions, for the rebuilding of forests was required in order to provide much-needed wood, for naval ships, industrial and domestic use (Albion, 1952) .

Aesthetic impact

The aesthetic element of accounting is being increasingly recognised as an important element of the accounting process with aesthetics representing a building block for social and environmental accounting (Solomon and Thomson, 2007; Gray, 2010). Evelyn observes this in various parts of *Fumifugium* (on page 18, also page 19²⁰)

“...It is this horrid Smoake which obscures our Churches, and makes our Palaces look old...” (Evelyn, 1661, p.18).

“...with its black and tenacious quality, spots and contaminates whatever is exposed to it” (Evelyn, 1661, p.18).

In a similar way, the engineer’s report which represented a social account focused to a large extent on visual impact rather than aesthetic impact (Braithwaite’s report on water pollution, see Solomon and Thomson, 2009). Morris, however, in his many letters and lectures raising environmental accountability awareness, placed a strong focus on aesthetic accounting (Solomon and Thomson, 2009). Gray (2010) called for wider forms of sustainable narratives about an organisation’s sustainable impacts, including aesthetic accounting. Gilbert White’s ‘accounts’ of biodiversity and extinction incorporated significant aesthetic elements (Atkins and Maroun, 2020).

Odour

As well as affecting visual senses through aesthetic impact, pollution in 17th century London had an impact on people’s sense of smell,

“...for the extraordinary stench and halitus it sends forth” (Evelyn, 1661, p.20),

¹⁹ Evelyn believed he was contending knowledge on the benefits of smoke “That the college of Physicians esteem it rather a preservation against infections” (Evelyn, 1661, p13)

²⁰ “...It is this which scatters and strews about those black and smutty Atomes upon all things where it comes, insinuating itself into our very secret Cabinets, and most precious Repositories” (Evelyn, 1933, p.19).

“...it is this which diffuses and spreads a Yellownesse upon our choicest Pictures and Hangings” (Evelyn, 1933, p.19).

both for the visitor and those who live in the city of London²¹. The incorporation of non-visual senses into narrative accounts has been suggested as an important development which enriches the narrative and one which could enhance corporate narrative disclosures, especially in relation to nature and environmental impacts (Atkins and Atkins, 2017). Indeed, Solomon and Thomson (2009) showed how noxious smells, as well as visual impacts, arising from industrial pollution of the River Wandle, represented part of the external social accounting.

Damage to buildings and human health

Another area of significant impact was the effect of pollution on the architecture of London,

“...that pernicious Smoake which sullyes all her Glory, superinducing a sooty Crust or Fur upon all that it lights, spoyling the moveables, tarnishing the Plate, Guildings and Furniture, and corroding the very Iron-bars and hardest Stones with these piercing and acrimonious Spirits which accompany its Sulphure; and executing more in one year, than exposed to the pure Aer of the Country it could affect some hundreds” (Evelyn, 1661, p.18).

More than the damage to buildings, Evelyn was deeply concerned with the evidently serious impact of the sea coal smoke on human health. Indeed, our analysis of *Fumifugium* suggests that human health appears to represent his primary rationale for producing the pamphlet. Interestingly, the deleterious effect of mills’ operations on human health was clearly the chief motivation underlying Braithwaite’s account of water pollution two centuries later (Solomon and Thomson, 2009). He explains at the beginning of his work that the *Aer* has been referred to as the Vehicle of the Soul and the Earth and emphasises the essential nature of air for human existence (Evelyn, p.13)²². With *Fumifugium* Evelyn was part of a contemporary discussion around whether the air of London had harmful effects on health, with the evolving scientific understanding of the human body, physiology and health/sanitation, Evelyn highlighted the need for clean air,

“...as it [the air] is particularly inquinated, infected, participating of the various Accidents, and informed by extrinsecal Causes, which render it noxious to the Inhabitants, who derive and make use of it for Life” (Evelyn, 1661, p.14).

²¹ “...the weary Traveller, at many Miles distance, sooner smells, than sees the City to which he repairs” (Evelyn, 1933, p.18).

²² “...her Inhabitants breathe nothing but an impure and thick Mist, accompanied with a fuliginous and filthy vapour, which renders them obnoxious to a thousand inconveniences, corrupting the Lungs, and disordering the entire habit of their Bodies” (Evelyn, 1933, p.17).

²² “...this frail Vessell of ours which contains it [the air]; since we all of us finde the benefit which we derive from it, not onely for the necessity of common Respiration and functions of the Organs; but likewise for the use of the Spirits and Primigene Humors, which doe most nearly approach that Divine particle” (Evelyn, 1933, p.13).

The text shows a growing awareness of the dangers of pollution to human health²³. There were ongoing discussions around air and health at the Royal Society and recommendations from the College of Physicians²⁴. Evelyn also provides details of the specific ailments arising from the pollution, and the effect on the lives of those afflicted²⁵:

“...which renders them obnoxious to a thousand inconveniences, corrupting the Lungs, and disordering the entire habit of their Bodies; so that Catharrs, Phthisicks, Coughs and Consumptions, rage more in this one City, than in the whole Earth besides” (Evelyn, 1661, p.17).

and causing the deaths of many:

“... this acrimonious Soot produces another sad effect, by rendring the people obnoxious to Inflammations, and comes (in time) to exulcerate the Lungs, which is a mischief so incurable, that it carries away multitudes by languishing and deep Consumptions, as the Bills of Mortality do Weekly inform us.” (Evelyn, 1661, p.25)

He links this inexorably with London and life in London, as either an inhabitant or a visitor.²⁶ Of course, in 1661, scientific understanding of ailments and medicine differed greatly from

²³ “...And therefore the Emypoisoning of Aer, was ever esteemed no lesse fatall than the poisoning of Water or Meate itself...” (Evelyn, 1933, p.16).

²⁴ “... For all subterrany Fuell hath a kind of Virulent or Arsenical vapour rising from it; which, as it speedily destroys those who dig it in the Mines; so does it by little and little, those who use it here above them” (Evelyn, 1933, p.23).

²⁴ At the Royal Society, Boyle’s air pump experiments had led to debate between Boyle and Hobbes around experiments (see Shapin and Schaffer, 1985). Drawing on Boyles work and after Fumifugium, Evelyn’s colleague and fellow Royal Society member, Henshaw (1664) published a discussion of the qualities of air and suggesting an air chamber within a house that might change air for health purposes. The College of Physicians recommended perfumed pomanders to ward off miasma that could cause plague.

²⁵ “...Now to what funest and deadly Accidents the assiduous invasion of this Smoake exposes the numerous Inhabitants ... A Tabid Body might possibly trail out a miserable Life of seven or eight years by a Sea-coale Fire” (Evelyn, 1933, p.20).

“... this acrimonious Soot produces another sad effect, by rendring the people obnoxious to Inflammations, and comes (in time) to exulcerate the Lungs, which is a mischief so incurable, that it carries away multitudes by languishing and deep Consumptions, as the Bills of Mortality do Weekly inform us.” (Evelyn, 1933, p.25)

²⁶ “...it is manifest, that those who repair to London, no sooner enter into it, but they find a universal alteration in their Bodies, which are either dried up or enflamed, the humours being exasperated and made apt to putrifie, their sensories and perspiration so exceedingly stopped, with the losse of Appetite, and a kind of general stupefaction, succeeded with such Catharrs and Distillations, as do never or very rarely quit them, without some further Symptomes of dangerous Inconveniency so long as they abide in the place...” (Evelyn, 1933, p.21).

“...But how frequently do we hear men say (speaking of some deceased Neighbour or Friend) He went up to London, and took a great Cold &c., which he could never afterwards claw off again” (Evelyn, 1933, p.21).

“...For is there under Heaven such Coughing and Snuffing to be heard, as in London Churches and Assemblies of People, where the Barking and the Spitting is uncessant and most importunate” (Evelyn, 1933, p.22).

contemporary understanding. Evelyn discusses workers being unable to move away due to poverty, forced to remain in hovels and forced to suffer the impact of pollution. He suggests that when the polluting businesses are moved from London “the Places and Houses deserted (which commonly take up a great space of Ground) might be converted into *Tenements*, and some of them into *Noble Houses* for use and pleasure” (Evelyn, 1661, p.17), it could be argued that he wanted to improve the aesthetics of London for the rich who lived there by relocating industry, which would result in migration of labour to these new locations, and in planting trees and herbs, which would still enhance many lives, but this is not the argument he espouses. Evelyn continued his campaign to clean up London and in 1662 he became Commissioner for the improvement of the City streets. He demonstrates a deep concern for social betterment, noting ‘this request of mine, which concerns the universal benefit’, a core element to emancipatory social accounting and audit (Gallhofer and Haslam, 2003, p.188, note 9). *Fumifugium* predates social accounting interventions of the 1970s by 300 years, using a similar approach, by highlighting negative environmental and social impacts of business activity as it is in a form very different from conventional financial accounting, being entirely narrative. In 1661 he produced an alternative account similar to that of a UK social activist group in the 1970s (Gray et al., 1996). Like Champion in the late 19th century, a collective of journalists, producing what have been referred to as ‘anti-reports’, Evelyn seems, “... dedicated to bringing about action to effect radical social change by highlighting, through [his] reporting, injustice, especially capitalistic exploitation, repression and alienation” (Gallhofer and Haslam, 2003, p.117).

Fumifugium gives voice to the inhabitants of London, bringing their concerns out of silent despair and suffering to the highest power in the land. In this way, *Fumifugium* acts as an emancipatory account that seeks to empower the readers as well as giving voice and empowerment to those in society who were disempowered, voiceless and frequently silent or silenced (Gallhofer and Favotto, 2017; Atkins and Gallhofer, 2021).

Impact on flora and fauna

One of the current concerns in corporate social accounting is the company’s impact on nature, species and biodiversity (Jones and Solomon, 2013; Russell et al., 2017; Cuckston, 2021; Zhao and Atkins, 2021). In Evelyn’s emancipatory pollution account we can see the origins of concerns about linkage between pollution and nature, specifically impacts on individual species of flora and fauna,

“....*Avernus to Fowl, and kills our Bees and Flowers abroad, suffering nothing in our gardens to bud, display themselves or ripen; so as our Anemonies and many other choicest Flowers, will by no Industry be made to blow in London ... imparting a bitter and ungrateful Tast to those few wretched Fruits, which never arriving to their desired maturity, seem, like the Apples of Sodome, to fall even to dust, when they are but touched.*” (Evelyn, 1661, p.19).

The threat to bees, especially, arising from industrial processes and agriculture has been of significant concern in recent years (Atkins and Atkins, 2016) and we can see from these early accounts that these creatures were affected by the earliest industrial activities. Interestingly, the nature diaries kept by Gilbert White in the 18th century also recorded smoke that reached him from London (Atkins and Maroun, 2020).

Evelyn's Solutions

Although the awareness and problematisation of pollution and its social and environmental impacts were similar to contemporary perspectives, the understanding of solutions to these problems were relatively unevolved. Indeed it is poignant that the development of solutions and means of tackling problems seems to have lagged the comprehension of the problems and their impacts. Perhaps this is a pervasive finding. According to Evelyn there were two primary lines of attack on the problem of a polluted London: relocation of the sources of pollution and anti-pollutive actions.

Relocation

The primary 'remedy' that Evelyn proposes to deal with industrial pollution in 17th century London was, the moving out of London of the trades which used sea coal for their production processes (Evelyn, 1661, 29)²⁷.

Refining this to suggest that the government become involved and proposing an Act of Parliament:

"...I propose therefore, that by an Act of this present Parliament, this infernal Nuisance be reformed; enjoyning, that all those Works be removed five or six miles distant from or at least so far as to stand behind that Promontary jetting out, and securing Greenwich from the pestilent aer of Plumstead-Marshes....." (Evelyn, 1661, p.30).

Measures to counteract pollution

Evelyn's other strategy was to recommend the planting of millions of aromatic, sweet-smelling plants in order to masquerade the odours from the polluted air:

"That the Spaces, or Area between these Palisads, and Fences, be employ'd in Beds and Bordures of Pinks, Carnations, Cloves, Stockm-gilly-flower, Primroses, Auriculas, Violets, not forgetting the White, which are in flower twice a year, April and August; Cowslips, Lillies, Narcissus, Strawberries, whose very leaves as well as fruit, emit a Cardiaque, and most refreshing Halitus: also Parietaria Lutea, Musk, Lemmon and Mastick Thyme: Spike,

²⁷ "...removal of such Trades, as were manifest Nuisances to the City, which, I would have placed at farther distances; especially, such as in their Works and Fournaces use great quantities of Sea-Coale, the sole and only cause of those prodigious Clouds of Smoake, which so universally and so fatally manifest the Aer, and would in no City of Europe be permitted, where Man had either respect for Health or Ornament. Such we named to be Brewers, Diers, Sope and Salt-boylers, Lime-burners, and the like: These I affirm, together with some few others of the same Classe removed at competent distance, would produce so considerable (though but partial) a Cure, as Men would even be found to breath a new life as it were....." (Evelyn, 1661, p.29).

"...foul mouth'd Issues, and Curles of Smoake...." (Evelyn, 1661, p.29).

Cammomile, Balm, Mint, Marjoram, Pempernel, and Serpillum, &c. Which upon the least pressure and cutting, breathe out and betray their ravishing odours” (Evelyn, p.38).

The footnote to the 1825 edition raised an important issue which helps to place Evelyn’s proposals, which seem bizarre in this day and age, in context,

“If the reader should find himself disposed to smile when he sees the author gravely proposing to counteract the offensive smells of London by rows of trees and borders of fragrant shrubs and aromatic herbs, he should remember that this scheme, visionary as it may appear, was the foible of a writer whose enthusiasm for planting has proved of singular service to this Kingdom; productive of noble plantations, ornamental to the country, and useful to the community” (Evelyn, p.37).

In the following section we attempt to identify in our analysis of the content (and intent) of Evelyn’s *Fumifugium* those elements that can be associated with the external accounts of social activists/reformers, rendering previously invisible or ignored negative externalities visible, heightening transparency regarding early industries’ negative externalities.

7. Concluding Discussion: Reflecting on the emancipatory impact of Fumifugium

In addition to the Parliamentary Bill drawn up after *Fumifugium* was presented to the King, there was an immediate impact through the efforts of the Royal Society (Brimblecombe, 1978a) which would have been likely to influence contemporaneous society. In 1663, the anonymous Ballad of Gresham College celebrates Evelyn and his *Fumifugium* (Stanza 23), as follows,

“He shews that’t is the seacoale smoake
That allways London doth Inviron,
Which doth our Lungs and Spiritts choake,
Our hanging spoyle, and rust our Iron.
Let none att Fumifuge be scoffing
Who heard at Church our Sundaye’s coughing”

The Ballad continues to highlight the importance of *Fumifugium* in Stanzas 24 and 25. More recently, *Fumifugium* has been reprinted a number of times, including being reprinted in full in the journal *Organisations and Environment* in 1999. *Fumifugium* has provided evidence, or background in environmental debates and discussions in Parliament, being referenced in Parliamentary Commissions on Pollution, specifically in Parliamentary papers and reports in 1956 (House of Commons, 1956) and 1975 (Royal Commission, 1975) and in Commons debates in 1955 (HC Deb, 1955) and 1998.

Although Evelyn clearly did not want to overthrow the contemporary socio-political order, as he was embedded in the political environment of the time and was a friend and advisor to the King, he was seeking societal change and reform of business behaviour in 17th century London. Perhaps his commitment to the political status quo was a reason why *Fumifugium* did not achieve fully its emancipatory potential at the time. In the wake of the political upheaval of the civil war, there was

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3 a general desire for stability. If we consider a spectrum of locations for social accounting extending
4 from the radical to the counter radical, then *Fumifugium* may be placed somewhere along the line
5 as it contains radical, ideological attack of the economic structures and activities in favour of
6 society but does not require a socio-political change and Evelyn's recommendations would have
7 been unpopular with those in charge of industry. The owners of businesses Evelyn named and
8 shamed would have fraternised within the same social groups as he was involved with. This may
9 suggest a level of naivety on Evelyn's part. By working within the status quo, for Evelyn however,
10 "... there is a danger of at least to some extent reinforcing rather than challenging the socio-
11 political order. To argue otherwise is to fail to see the penetration of hegemonic forces in these
12 situated practices" (Gallhofer and Haslam, 2003, p.122).
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16 Evelyn's disappointment and frustration that his recommendations were not enacted upon are
17 understandable: presenting his work to the King and being so well-received must have led him to
18 believe that his recommendations would be implemented. He, understandably for his time, perhaps
19 did not see that dealing with the monarch himself, the bastion of the contemporaneous socio-
20 political hegemony, could dilute, if not entirely prevent, the radical emancipatory transformation
21 of London he imagined, in his utopian vision. Despite this, we can see that *Fumifugium* has had
22 an enduring emancipatory impact.
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25 As discussed above, the literature acknowledges that social and environmental accounting is not
26 solely the domain of businesses reporting on themselves but extends to the production of accounts
27 by external interested parties who are concerned about the social and environmental impacts of
28 business. Solomon and Thomson (2008) argue that the problematising intentionality within these
29 accounts represents an important element of understanding social and environmental accounting.
30 An account by an external stakeholder about an organisation's activities involves 'giving an
31 account' rather than representing an 'account rendered' by that organisation. 'Giving an account'
32 in this manner provides the reader with an insight and understanding of a specific (problematised)
33 issue which raises awareness and may then lead to a change in the organisation's behaviour. We
34 argue that Evelyn's campaigning pamphlet is an example of an external stakeholder giving such
35 an account and constructing a new visibility of the harm done from the burning of sea coal, as well
36 as other forms of pollution from local businesses. There are clear differences in the media and
37 language of this 17th century account compared to 21st century external accounts by social
38 activists, but in many respects, they are very similar in intent just tailored to the political context
39 and arena in which they seek to engage.
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43 Evelyn clearly intended his account to raise awareness of the causes and consequences of air
44 pollution in London and to bring about changes in conduct to avoid these damaging consequences.
45 His account sought to challenge the *status quo* by creating and disseminating a scientific account
46 of the problem, developing that discussed at the Royal Society who sought ways to clean the air,
47 and the College of Physicians, who to Evelyn advocated smoke as a safeguard against the plague,
48 and its impact has been acknowledged in the historic and environmental literature but not in the
49 accounting history literature. There is a strong emancipatory element running through *Fumifugium*.
50 The social activism of William Morris in the 19th century contained in his accounts of industrial
51 impact on nature (Atkins et al., 2017) as well as the identification of smoke from London factories
52 in White's nature diaries (Atkins and Maroun, 2020) have been interpreted as emancipatory. It is,
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3 however, striking to see elements of emancipatory environmental accounting by an interested party
4 as early as the mid-17th century.
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6 We have sought to analyse the text of *Fumifugium* and extract themes relating to the content,
7 purpose and proposed solutions of his representation of the problem. Evelyn's account contained
8 a number of elements associated with external accounting including: problematisation through a
9 detailed narrative external account of the impact of pollution on 17th century London;
10 identification of the polluting businesses; aesthetic impact; odour; damage to buildings, and;
11 deleterious impact on human health and biodiversity: species of flora and fauna.
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14 Like many of the external accounts discussed by Dey (2003, 2007) and Dey et al. (2010, 2011),
15 Evelyn's account includes solutions to industrial pollution including both relocation of the
16 offending businesses but also the earliest published proposal for environmental offsetting: vast
17 plantations holding aromatic shrubs, herbs and trees for the, "...*Improvement and Melioration*
18 *of the Aer about London*" (Evelyn, 1661, p.39). One interesting observation from this study is
19 that the appreciation of air pollution by industrial smoke in 1661 and its various impacts appears
20 similar to a modern day understanding. It is the solutions suggested which reveal the difference in
21 understanding in terms of technology and scientific approach. Similarly, it is notable that Evelyn's
22 concerns regarding pollution are local rather than global reflecting a myopic local view of
23 industrial impacts rather than the global view appreciated today, where scientists acknowledge
24 global climate change impacts arising from local effluents and emissions. Similarly, an interesting
25 observation is that Evelyn's account adopts an interdisciplinary approach as he weaves
26 contemporary scientific knowledge with contemporary medical knowledge, contemporary botany,
27 gardening and a 17th century appreciation of industrial processes. In a world where academic and
28 scientific work is seeking to escape a silo mentality and embrace a more multidisciplinary
29 approach it seems we are in fact seeking to regain this interdisciplinary approach reflected in the
30 work of Evelyn almost four hundred years ago. Consequently, lessons may be learned for
31 contemporary social and environmental accounting about the importance of multidisciplinary in
32 reporting, as well as the need to link impact to mitigation strategies and reporting of outcomes,
33 this should be of consideration for future research.
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39 Further research could explore other alternative environmental and ecological accounts, such as
40 diaries, travel journals, letters, reports, reviews, investigating other contemporary accounts,
41 previous or later records. Investigations could be made of creative and aesthetic historical accounts
42 of flora and fauna, of the natural environment and ecology in literature, poetry, etchings,
43 illustrations and historical reports. Comparative accounts of environmental and ecological
44 accounting across time would be of interest or comparisons of historical accounts around the
45 world, looking at international elucidations of past accounting for biodiversity, or extinction
46 accounting.
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49 *Fumifugium* was not an 'account rendered' by the polluting party discharging accountability to
50 society, but was an external narrative account 'giving an account' of pollution to those in power,
51 problematising it, calling for accountability relationships and for the polluter to discharge their
52 accountability by altering their behaviour (Li and McKernan, 2016). *Fumifugium* provides insights
53 into how an environmental account was used in challenging, resisting and seeking to solve an
54 environmental problem by making the adverse consequences visible to those in power, making
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3 new solutions thinkable and a proposal to make the situation of concern governable. *Fumifugium*
4 challenged the lack of accountability of 17th century businesses and environmental governance by
5 providing Evelyn's own account and solutions to industrial pollution, in way similar to present day
6 campaigns to deal with the overwhelming challenge of climate change. *Fumifugium* may be
7 viewed as an attempt to raise awareness of environmental impacts in 17th century London where
8 those in power would likely be committed to industrial progress and uninterested in/unaware of
9 the negative consequences of their actions and activities.
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12 *Fumifugium* can be seen as a holistic account (Unerman & O'Dwyer, 2007) of the air pollution of
13 London that represents the view of different stakeholder groups experiencing harm from the
14 pollution caused by businesses operating in London. It 'names and shames' and attempts to hold
15 to account those businesses deemed responsible. The problematisation of these actions, the account
16 of the damage caused and the solutions proffered represent the 'best' scientific, medical evidence
17 of the time. Despite the florid nature of the language of *Fumifugium*, it can be seen as based on
18 sound evidence, strategic grasp of the politics and levers of power with a radical intent to cure
19 London of its dismal, polluted image.
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24 In the continuing fight to lessen global warming it is both reassuring and disappointing to know
25 that an eminent, intellectual and impactful man in 17th century London raised concerns around
26 industrial pollution and its effects on human health and nature.
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