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Automobility violence: the case for adopting tobacco public health policies

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ABSTRACT

Although tobacco use and road fatalities were recognized as public health issues at roughly the same time, the public health responses have been very different. The accepted wisdom in public health policy is that access to tobacco should be limited, highly taxed, advertising prohibited, visual and textual warnings be mandatory on tobacco products, the obfuscation and lobbying efforts of the tobacco industry publicized. In this paper, we make the case for adopting similar strategies in relation to automobility. As opposed to framing automobility violence as a remediable road safety issue, this paper makes the case for treating automobility violence as an irremediable public health problem. The public health goal with respect to tobacco is not simply to reduce death and disease but to eradicate tobacco use. The public health goal in respect to automobility should be the same. This requires pursuing public health politics oriented towards the dismantling of automobility.

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1. Introduction

Since the late the nineteenth century, when cigarettes became a product of industrial production, the smoking of cigarettes has been wrought with controversy (Brandt 2007b, 2). Already by the 1920sat the same time, that tobacco came to be considered a moral problem (Anonymous 1895; Culp 1929; Egan 1930; Ford 1914), a range of health problems associated with tobacco use had been identified. Survey research provided strong evidence that lung cancer was directly traceable to cigarette smoking (Hajdu and Vadmal 2010). In the 1950s, epidemiological studies of tobacco-related morbidity and mortality conclusively identified tobacco use as a health risk (Doll and Bradford Hill 1950; Douglas et al. 2011, 160). In 1962, the Royal College of Physicians published *Smoking and Health: A Report on Smoking in Relation to Cancer of the Lung and Other Diseases* (Royal College of Physicians of London 1962). Two years after the British report, *Smoking and Health: Report of the Advisory Committee to the Surgeon General of the Public Health Service* was published in the United States (Surgeon General's Advisory Committee on Smoking and Health 1964). In a review of the British report, published 40 years later, also by the Royal College of Physicians (2002, 18), it was noted that

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> we can look back on the original report as a turning point. It did more than all the Government's previous efforts over twelve years to educate the public about the dangers of smoking. It introduced the idea of a comprehensive programme of tobacco control. And it forced acceptance in Whitehall that there was a need for real action on smoking, rather than merely the appearance of action.

The accepted wisdom in public health policy is that tobacco is not only bad for health and well-being but that policies should support reducing tobacco use through limiting access to tobacco, prohibiting advertising, the use of warnings, pricing, taxation, as well as other policy tools (Boyle 2010). In this paper, we make the case for adopting similar health policies with respect to automobility. There is, to paraphrase the 2002 Royal College of Physicians review, a need for real action, not the appearance of action, with respect to automobility violence.

Globally, more people are killed in road crashes than from any other form of violent death, war included. Annually, 1,350,000 people are killed and 50,000,000 are seriously injured (World Health Organization 2018, vii). Someone dies through direct impact with an automobile every 23 s, approximately 3,700 individuals every day (Braun and Randell 2022b). There has been no authoritative estimate of the total number of road deaths since the first automobility fatalities. Our estimate is 85 million people[1]: roughly 60 million in the twentieth century, a further 25 million in the first two decades of the twenty-first century, and 3,600,000 in the first 3 years of the third decade of the twenty-first century.

The death and injury that accompanied the appearance of automobiles on public roads in the early the twentieth century in the United States resulted in significant opposition and outrage (Norton 2008, 21–46). As with tobacco, it was only in the late 1950s and early 1960s that automobility death and injury came to be defined as a public health issue. In 1962, the same year as the publication of the Royal College of Physicians report, the World Health Organization published *Road Traffic Accidents: Epidemiology, Control, and Prevention*. That the report was published by the World Health Organization elevated road traffic accidents to the status of a *global* public health issue. At the time of writing of *Road Traffic Accidents: Epidemiology, Control, and Prevention*, the estimated number of road deaths was 100,000, considerably less than today,[2] yet L. G. Norman (1962, 7), the author of the report, described traffic accidents as "a new epidemic." Although tobacco and automobility were recognized as global health problems at roughly the same time, the public health responses have been vastly different.

Automobility death and injury are the cause of massive physical and emotional suffering not only for those killed and injured but those left behind (World Health Organization 2004, 50). This violent attrition of human life and destruction of the human body, now over a time span of more than a century, is considered normal, unremarkable and acceptable (Paterson 2007, 41). Automobility is the most violent socio-political order on earth not only for humans but also for non-humans and the more-than-human (Abram 1996). Hundreds of millions of animals are killed each year through collisions with vehicles (Davenport and Davenport 2006, 165–189). In Europe alone, 194 million birds and 29 million mammals are killed annually on roads (Grilo et al. 2020).

Though one of the many sources of greenhouse gas emissions, automobility is one of the principal technologies responsible for climate change. The consequences are well known and include the disappearance of land with rising sea levels, desertification, droughts, bushfires, hurricanes and other extreme weather events, species

extinction, the death of coral reefs resulting from increased water temperatures. In addition to automobility's contribution to global warming (Bonneuil and Fressoz 2016), automobile pollutants result in disease and death. Already in 1941, two American surgeons observed that "the increase in lung cancer was due to increased production of automobiles and consumption of tobacco" (see also Hajdu and Vadmal 2010, 179; McGrayne 2001, 79–105). Automobility, as Pellow and Brulle (2007, 41) has put it, is one of the "institutions that routinely poison the earth and its people." In the European Union alone, four hundred thousand people die every year from respiratory diseases caused by automobility induced pollution (European Commission 2017; see; Vohra et al. 2021 for global estimates). Greenhouse gases as well as local pollutants are forms of "second-hand smoke," which kill many more people and cause considerably more environmental destruction than does second-hand tobacco smoke.

While tobacco manufacturing, marketing, advertising and use are seen as a socio-ethical issue (Mastroianni 2019), automobile death and injury are understood to be remediable through technosocial modification (Nader 1965; AHAS 2004; Davis and Pless 2001) and policies to promote technoscocial change. Improving safety and health concerns related to automobility have been heralded as a success of public policy (CDC 1999). The empirical evidence belies this assessment. As Esbester and Wetmore (2015, 316) observe in their introduction to a special issue of *Technology and Culture* on (Auto)Mobility, Accidents, and Danger, "Despite more than a century of efforts to address automobile safety, there are more casualties on the world's roads than ever." According to the World Health Organization, which regularly publishes authoritative global statistics on road deaths and injuries, in only the 3 years between 2015 and 2018 road deaths increased by 100,000—from 1,250,000 to 1,350,000 (World Health Organization 2015, vii; 2018, vii). What was already described as an "epidemic" in 1962 with 100,000 annual deaths, now oscillates between 1,190,000 and 1,350,000 deaths (2023) and 50 million injured.

To protect smokers, potential smokers, and third-party non-smokers, health policies have included the banning of smoking in enclosed areas, the aiding of informed individual decisions through signs, pictures, warning labels and the like. Such interventions with respect to automobility remain not only of the public health discussion table but largely unimaginable. In the following pages, we make the case for placing such interventions on the public health discussion table. We first discuss the socio-political similarities between tobacco and automobility. This is followed by a brief discussion of agnotology and theories of accident causation. We then discuss health-based public policy options with reference to successful tobacco control measures. Along the lines of how public policy has dealt with tobacco, we propose similar measures for automobility. This calls for addressing automobility violence with public health policies considerably different to those that are currently recommended by public health authorities (which are typically framed within a "safety discourse") such as the World Health Organization. Although not so described in the public health literature, the politics of tobacco health efforts have been directed towards what we call "de-stitution," here the de-stitution of the tobacco imaginary. We make the case for pursuing similar efforts with respect to automobility.

2. What is automobility?

In everyday life, one way in which we experience automobility is as it has been defined by an assemblage of automobile-related interests. These commonsense understandings of automobility has been challenged by scholars in the field of automobility studies, asking where they originate, who they benefit, how they have been constructed, and what their consequences are. Not only has a critical, alternative account of automobility to that disseminated in advertisements, the mass media, by automobile manufacturers, and within popular culture and public discourse, been articulated, these everyday experiences and common-sense representations of automobility have been conceptualized as themselves intrinsic components of automobility and thus also as objects of inquiry. This raises the question of power: the capacity to define what automobility might or might not be, what is to be included under the term "automobility" and what is not. There is no non-political location from which automobility could be described "as it really is" (Randell and Robert 2022, 1–2).

Across this literature, "the car" has been decentered by being represented as only one component of something larger – "automobility." Within what has been called "the new mobilities paradigm" (Sheller and Urry 2006, 2016), automobility has been conceptualized as a sociotechnical system (Brand 2008; Jasanoff 2004; Urry), as a Foucauldian regime (Böhm et al. 2006) and *dispositif* (Manderscheid 2014). These approaches have focussed on automobility as a technosocial order that creates a networked, autopoietic system of artefacts, humans and socialities with its own regime of truth and with humans subjectified into specific forms of being (Bonham 2006). It institutes its own agonistic politics (Dawson, Day, and Ashmore 2020) as well as its own social histories (Bednar 2020) and social geographies (Edensor 2004). It is a social order that both humans and non-humans have no choice but to live in (Braun and Randell 2022a; Norton 2008, 2021; Urry 2006, 19–22).

Since the beginning of the twentieth century, automobility has spread across the globe in extension, density and intensity. The construction of the material components of automobility has required massive appropriation of land and space, not just the geometrically measurable quantity of space that roads occupy but also the appropriation and transformation of land through mining and other forms of resource extraction, and the appropriation of the global commons that is the atmosphere through greenhouse gas emissions across all these processes. Existing roads have been, and continue to be, transformed into thoroughfares for automobility movement (McShane 1994). Not only existing roads but spaces previously external to automobility have been appropriated for automobile access (Mumford 1963). Approximately 66 million kilometers of roads have been constructed across the surface of the planet (United States Central Intelligence Agency).

It is not only the material components of automobility that have spread across the entire planet but also the non-materiality of automobility, its imaginaries, desires, ways of living, and the transformed subjectivities and selves that are also intrinsic components of automobility. Since its original habitus in Europe and North America, automobility has now expanded across the industrialized world and much of the Global South, becoming a *global* political, spatial and social order. The global expansion of automobility has transformed much of the planet into an automobilized world (Braun and Randell 2022b).

Across much of the automobility studies literature, automobility is understood to be both destructive and violent (Becker, Becker, and Gerlach 2012; Cass and Manderscheid 2018; Culver 2018; Hosseini and Stefaniec 2023; Martens 2016; Miner et al. 2024; Merriman 2009; Newman 2013; Seo 2019; Sheller 2018). Reproduced through its own performative politics (Butler 2011, 1999), it creates its own public realm (Arendt 1958; McGowan 2022). That a world without automobility is virtually unthinkable (Braun and Randell 2022a; Culver 2018) attests to its material-ideological hegemony.

Automobility is more than just a mode of transportation but a socio-political complex comprised of investments, capital loans, factory workers, research centres, transportation, lobbying organizations, the marketing, production and distribution of its products, consumers, drivers and passengers (Böhm et al. 2006; Law and Urry 2004; Manderscheid 2014; Sheller and Urry). Its components, John Urry (2004) observed in "The 'System' of Automobility," include "car parts and accessories; petrol refining and distribution; road building and maintenance; hotels, roadside service areas and motels; car sales and repair workshops; suburban house building; retailing and leisure complexes; advertising and marketing; urban design and planning; and various oil-rich nations." It is a list that can be expanded to include tow-trucks, ambulances, operating theatres, undertakers, and funeral parlours; oil tankers and naval forces to protect oil supplies; a geopolitical order that protects, upholds, and tacitly supports the human rights crimes of the regimes of the oil-rich nations (Randell and Robert 2022); the normalization of the slow violence (Nixon 2011) that is the killing of animals on a mass scale either directly or indirectly ("perpetanimacide") through the destruction of their habitats.

3. What is tabagism?

Although rarely used, even in medical literature, the term tabagism is usually used in reference to tobacco use and addiction (e.g. Fantini et al. 2016). As is the case with automobility, "tabagism" is more than tobacco use and the addiction of users. Analogously to automobility, tabagism is an assemblage of interconnected human and non-human entities, including but not limited to tobacco growers, investments, capital loans, factory workers, research centers, transportation, lobbying organizations, the marketing, production and distribution of tobacco products, science labs, health statistics, users, cultural iconography and feminist struggles for acceptance, and casual smoking. The expansion of tabagism from its early use to becoming the industrial artefact that is the cigarette, has, like automobility, required the massive appropriation of land and space. In the Americas, tabagism is closely connected to slavery and other forms of racial exploitation, in Europe the appropriation of the air through carcinogenic tobacco smoke in which almost everyone was coerced to live in. Not only homes or gentlemen's clubs but spaces previously external to tabagism were appropriated for tobacco smoking with the spread of cigarettes in the first few decades of the twentieth century (Brandt 2007b, 65–101).

From the beginning of the sixteenth century to the end of the nineteenth century, tobacco enjoyed widespread medicinal use. Sniffed as a remedy for colds, headache, and eye problems, chewed for alleviating toothache, gum diseases, aches in the throat, and mental depression, it was recommended as a treatment for a variety of health complications. Smoking tobacco was claimed to improve body odor and prevent plagues. Persons

of all ages and classes smoked during the great epidemics. It is believed to calm the nerves and relieve anxiety by purging the brain (Hajdu and Vadmal 2010). Tobacco use spread in Europe because of the therapeutic claims made on its behalf and its cultural and social desirability.

As demand rose, tobacco became increasingly important politically and commercially from the seventeenth century onwards. Already by 1640, tobacco *qua* commodity had been enmeshed in disputes over monopolies, taxation and, with the introduction of tobacco vending permits, the royal prerogative (Weatherill 1986). Turning tobacco into cigarettes at the end of the nineteenth and the beginning of the twentieth centuries marked the transformation of tobacco, a substance enjoyed for its medicinal or therapeutic properties, into an industrial product manufactured, advertised and distributed as a commercial produce aimed at mass consumption (Brandt 2007b). The industrially viable cigarette filling machine was invented by James Bonsack in 1881, around the same time that Karl Benz patented his invention of the early mechanized vehicle in 1885 that later was transformed into the mass market product now called the automobile.

"Fordism," based on Henry Ford's original mass production process in an assembly line, using scientific management procedures developed by Frederick Winslow Taylor (Taylor 1911a, 1911b) whereby complex production processes are reduced to simple tasks, each assigned to a separate individual, requiring minimal training of workers, enabling low-cost, automobiles to be produced. Satirized by Chaplin (1936) in *Modern Times*, Fordism soon became the mass production-based paradigm for producing standardized goods in large quantities using specialized equipment and unskilled manpower. What we here call "Dukism" evolved in parallel to Fordism. James Buchanan Duke, the founder of W. Duke Sons & Company, based in Durham, North Carolina, and after whom Duke University is named, began producing cigarettes in 1879. Through technological innovations in both manufacturing and distribution, aggressive marketing and lobbying, by 1890 Duke's company, renamed the American Tobacco Company, had become a virtual cigarette monopoly for cheap, mass market, standardized and affordable, cigarettes. However, Dukism contained additional innovations to those associated with Fordism: trade secrets; distribution-oriented technological innovations and know-how; undisclosed agreements that made wholesale distribution of mass production possible. As recounted by Allan Brandt (2007a, 29) in *The Cigarette Century: The Rise, Fall and Deadly Persistence of the Product that Defined America*, "Duke signed a secret contract in which he agreed that he would produce all his cigarettes with the Bonsack machine; in return, Bonsack reduced Duke's royalties to $.20 per thousand. Duke and Bonsack soon reached a further agreement guaranteeing Duke a 25% discount on royalties against all other manufacturers." It was Duke's understanding that the deal of securing technology through secret, discounted licensing agreements was critical in dominating the tobacco market and to make the wholesale distribution and sale of the product possible. Dukism not only involved producing standardized tobacco products in large quantities using specialized technologies that reduced manpower, as did Fordism, it also required organizational, business and marketing know-how; structuring his company according to specialized divisions run by dedicated managers; and, most importantly, securing market dominance by trade-deals and secret arrangements against his competitors.

Although as Brandt (2007b, 2) observed, as recently as 1900, "the cigarette had been a stigmatized and little used product constituting a small minority of the tobacco

consumed in the United States," by the middle of the twentieth century, largely as a result of Dukism, there were few aspects of Western societies that were cigarette smoke-free. Enabled by innovations in production technologies, advertising, design, and social behavior, the cigarette moved from the periphery of political and cultural practices to the center. The manufacturing and distribution as well as aggressive advertising and promotion via coupons and collectables of the standardized cigarettes, combined with new forms of industrial organization – secret trade and technology deals, the tobacco trust, and the creation of a complex vertically integrated industry – marked the transformation of tobacco into mass market capitalist production and distribution akin to, but also more complex than, that of Fordism (Brandt 2007b). As was Fordism a significant moment in the transformation of individual mechanized mobility into automobility, Dukism represented the transformation of tobacco use into tabagism. This was achieved through interconnected technological and organizational innovations, aggressive sales and marketing, sophisticated (and secret) trade-deals and the creation of a cigarette imaginary.

4. Imaginaries of automobility and tabagism

Ironically, Henry Ford despised tobacco and vowed not to hire smokers in his factories. In a widely distributed pamphlet entitled *The Case Against the Little White Slaver*, the "little white slaver" being the cigarette, Ford (1914, 27) quotes approvingly a notice that was placed in Cadillac Motor Car Company factories as part of an "active campaign against this evil":

> Cigarette smoking is acquiring a hold on a great many boys in our community. The habit has grown in the last year or two. Since it is such a bad practice and taking such a hold upon so many people, we think it is a disgrace for a grown man to smoke cigarettes, because it is not only injurious to his health, but it is such a bad example to the boys. Boys who smoke cigarettes we do not care to keep in our employ. In the future we will not hire anyone whom we know to be addicted to this habit. It is our desire to weed it entirely out of the factory just as soon as practicable.

The tobacco industry was at the forefront of efforts to foster deeper changes in socio-political life away from the views expressed in Ford's pamphlet and elsewhere. An array of agents was able to both read and shape the emerging socio-political forces. Through publicly performed visions (Jasanoff 2015) of a desirable tobacco future that were disseminated through advertising, in popular culture and art, but also in science and research, the tobacco imaginary was constituted. This transformation marks tobacco smoking as a prototypical socio-political and cultural form-of life in the twentieth century, one wherein entire populations were coerced to live at the threshold of a constant threat of a health epidemic.

There is a substantial body of the literature that has documented analogous strategies and practices to promote automobility by an array of automobility interests. Automobility was depicted as essential, convenient and safe (Bel Geddes 1939, 1940); as providing status, adventure, power, freedom, happiness and autonomy (Latimer and Munro 2006; Lomasky 1997; Rajan 2007); as intertwined with race (Alam 2020; Nicholson 2016; Pesses 2017; Sorin 2020), masculinity (Clarsen 2014; Connell and Pearse 2015, 99; Jain 2005),

identity and social class (see also Fish 1994, 273–280; Gartman 2004). It is under these publicly performed visions (Jasanoff 2015, 5–10) that automobility is routinely imagined.

Both the cigarette and smoking were depicted as socially desirable, healthy and safe, as an index of power and status, a remedy for tension and an agent of social cohesion. In short, a perfectly normal part of the daily routine (Batey 2003). Both the automobile and the cigarette became epitomes of cultural and social production (Böhm et al. 2006). Located within the newly constructed moral economy of Fordism and Dukism, the automobile as much as the cigarette became symbols of comfort, desirability and power. These transformations invoked and reproduced social and political values associated with pleasure, leisure, sexuality, and gender (Brandt 2007b).

It is not the "utility of cigarettes," as Klein (1993, xi; see also Svevo 2001) argued in *Cigarettes are Sublime*,

> that explains their power to attract the undying allegiance of billions of people dying from their habit. Rather, the quality that explains their enormous power of seduction is linked to the specific forms of beauty they foster. That beauty has never been understood or represented as unequivocally positive; the smoking of cigarettes, from its inception in the nineteenth century, has always been associated with distaste, transgression, and death. Kant calls "sublime" that aesthetic satisfaction which includes as one of its moments a negative experience, a shock, a blockage, an intimation of mortality. It is in this very strict sense that Kant gives the term that the beauty of cigarettes may be considered to be sublime . . . . The sublimity of cigarettes explains why people love what tastes nasty and makes them sick.

The aesthetics of the automobility imaginary and the cigarette imaginary are routinely reproduced not only through advertising; it is inseparable from the materiality of tabagism and automobility, most obviously the cigarette and the car respectively, but also the very experience of smoking and driving.

5. Agnotology

Agnotology (Kourany 2020), a concept coined by the American historian of science Robert Proctor (2008), draws on the Greek word *agnosis*, meaning "not knowing." This study studies the use of science, intentionally or otherwise, to create ignorance; to create doubt regarding scientific knowledge, or employing science to obfuscate existing knowledge, by for example, focusing attention on marginal scientific questions instead of those that are of central importance. When, mid-century, the adverse public and private health impacts of tobacco became well known and accepted within mainstream scientific consensus, the tobacco industry changed tactics. Instead of claiming that smoking is not lethal, they shifted their strategy to using science to create confusion regarding the health issues involved. Agnotology is the opposite of "lyseology": mobilizing science to convince policy makers and the public that the present possesses some form of lack that should be addressed with a new technologically manufactured and distributed artefact (Braun 2024).

Dukism involved a range of tactics that were deployed to create epistemological doubt, thereby creating a space for disagreement on tobacco-related health issues. Strategies for fostering ignorance by organizations and individuals who Oreskes and Conway (2010) have described as "merchants of doubt" included: creating doubt about conclusive findings by suggesting that more research was needed to settle hitherto

controversial issues; creating and funding research institutions to do "friendly" research; employing probability logic to create doubt regarding causality; the funding of decoy research; the establishment of scientific front organizations; promoting friendly "grey" research for publication in popular magazines; funding legitimate research that asked previously settled questions once again; supporting research that would bring to light additional detrimental factors; the manipulation of legislative agendas; promoting research to develop "safer" cigarettes (Galison and Proctor 2020). "One of the great challenges of tobacco control," Robert Proctor (2008) observed,

> is to come up with new and imaginative ways to think about how and where to intervene in the causal chains that lead to smoking. Visitors from another planet would probably be astonished by our willingness to tolerate mass death on a scale exceeding any other preventable cause of death. The strangeness of our present situation can be grasped by imagining a world in which every convenience store sold lead-coated children's toys, or sacks of asbestos with graphic warning labels covering, say, one third of the sack. Equally odd is the fact that virtually all tobacco control efforts are directed at preventing consumption rather than preventing production. The industry has managed to direct most of our attention onto consumer choice (or information), leaving the means by which cigarettes are spun forth into the world unexamined, unhampered. Few people can even imagine the inside of a tobacco factory, fewer still know anything about how or where the world's cigarette-making machines are made (clue: check out the Hauni company in Hamburg).[3] These machines cause more death and injury than any other invention in the history of humanity but remain virtually unprobed by tobacco prevention scholars. That is the world in which we live, thanks partly to the success of the industry in framing how we talk and think about tobacco, including schemes that make smoking seem a kind of freedom.

Similar agnotological tactics have been employed by automobility interests to counter public health challenges and promote a favorable cultural and political agenda (Gössling 2018, 147). As with tobacco and other products (see, for example, Jaeger 2017), debate has been successfully diverted from producers and their products onto the consumer. "Friendly" research promoting small and large scale technological advances is routinely funded (Mladenović et al. 2020). Endless research is funded for car electrification, automation, infrastructure, road and vehicle safety, and accident causation studies, yet every year death rates increase. A contemporary example is the very concept and term "sustainable automobility", which we are to take as meaning "environmentally sustainable." The term should rather be understood to mean an automobility that is able to sustain itself in the face of the harms and violence that are intrinsically, not contingently, essential to the reproduction of automobility (Croissant 2014). It does so through the many sociotechnical imaginaries (Jasanoff 2015) of automobility, one of which is "sustainable automobility", which have been disseminated by an assemblage of automobility interests including but not limited to manufacturers, policy agencies, insurance companies, research institutes, trade magazines and academic journals. Automobility is thereby "spun forth into the world unexamined, unhampered" (Braun 2019).

The two dominant contemporary sociotechnical imaginaries that ensure automobility will continue to sustain itself are the electric vehicle sociotechnical imaginary and the autonomous vehicle sociotechnical imaginary. The focus on electrification and automation promotes the belief that there are only two serious problems associated with automobility – global warming, and death and injury cause by accidents – for which we are promised solutions. Thereby agnotological ignorance is created in respect to all other

forms of automobility violence, not least the ongoing ecological destruction caused by automobility. In the case of automation, the current discourse surrounding "self-driving cars" requires the forgetting of more than a century of failed promises that autonomous driving will "solve" automobility ills such as congestion, death and injury (see, for example, Bel Geddes 1940; Norton 2021). No less than the internal combustion vehicle, the electric vehicle reproduces the intrinsic structural violence of automobility. It is, as Hosseini and Stefaniec (2023) put it, "a wolf in sheep's clothing".

Central to the road safety narrative is the frequently cited statistic that 93% of road crashes are due to human error (Singh 2018; Treat et al. 1979). The discourse on human culpability and the claim of the driver being at fault in 93% of crashes suggests that it is the individual's responsibility for betterment through education and caution and that it is the individual driver who is largely responsible for the death and injury. The first of several studies to conclude that 93% of road crashes are due to "human error" was conducted by the Institute for Research in Public Safety at Indiana University Bloomington, published as the *Tri-Level Study of the Causes of Traffic Accidents*. In Europe, the European Automobile Manufacturers Association (ACEA) initiated a *European Accident Causation Survey* with the support of the European Commission and under the auspices of the European Road Safety Federation (ERSF). Their findings paper begins with the observation that "Sufficient information on the causes of accidents is still lacking, although it is well known that more than 90% are related to human errors" (Chenisbest, Jähn, and Le Coz 1998, 415). Similarly, the *Handbook of Traffic Psychology* claims that "it is widely accepted that driver error contributes to more than 90% of all automobile crashes." That this is "well known" and "widely accepted," despite an acknowledged lack of "sufficient information on the causes of accidents," attests to the existence not of an epistemologically established fact but the existence of a statistic whose continual citation has successfully constructed it as a well-known and accepted "fact" (Braun and Randell 2020). An assemblage of agents have successfully defined "the driver," not other agencies, most obviously automobile manufacturers, as the principal culpable and responsible entity (Braun and Randell 2020). Not automobility, but "the driver," has been constructed as "the problem" (Best 2017; Gusfield 1976). A similar assumption underlies popular Vision Zero initiatives when its proponents claim that "[i]t is based on the simple fact that we are human and make mistakes" (cf. https://www.welivevisionzero.com/vision-zero/).

Similar to early twentieth-century road safety discourses that concentrated on driver education and traffic engineering (Bel Geddes 1940; Lochlann Jain 2004), these studies reproduce the everyday background common-sense assumption that automobility violence is not an intrinsic property of automobility but a contingent property; that automobility is intrinsically normal and safe. Contingency is assumed to be located in what are assumed to be its basic components: the driver, the road/environment and the vehicle; each crash occurring for contingent reasons that can be accounted for post-hoc, for which there is in principle a perspective from which every crash can be adequately explained. The policy recommendations in these studies and reports hold out the continual promise that automobility is remediable; that because "accidents" are contingent events they are avoidable; that its remediability lies principally with drivers; that automobile death and injury can be massively reduced; that drivers, not the enormous sociotechnical apparatus called "automobility", are responsible for this violence. A century of empirical evidence, including the collection of reliable quantitative data, belies all these assumptions.

6. Public health policies: tobacco and automobility

One of the key arguments for controlling tobacco use is the protection of smokers. From a public health perspective, the central ethical question has been the extent to which interference with the choices of individuals "for their own good" is permissible and not unduly restrictive of their personal freedom and autonomy to make their own decisions. One of the arguments in favor of such limitations is the addictiveness of smoking, combined with the often very young age at which smokers become addicted to tobacco. This prohibits smokers from making an informed choice about becoming smokers. A never-smoker can choose to smoke a cigarette, but she hardly can knowledgeably choose to be a smoker if she does not yet know what it means to be "a smoker" – to feel the regular, frequent need to smoke another cigarette, namely, to be addicted to tobacco.

Applying Rayner's (2009) "ecological model" of public health that is based on four dimensions of existence (the material, the physiological, the social and the cultural-cognitive) and the interconnectedness of these factors and their ecological implications, Douglas et al. (2011) have made the case for considering "car dependence" a social addiction that is facilitated by an array of social actors. Consequently, they argue, a new anti-car ecological public health model must be developed that addresses the social ills of such dependence to acknowledge that "it is one of the factors causing both the obesity epidemic and climate change, and is underpinned by cultural trends such as increasing consumerism and individualism [. . .] a potent example of the links between human health and global sustainability, and harms caused by cars should be understood as societal and political rather than individual or personal issues" (Douglas et al. 2011, 164). As does becoming a smoker, becoming "a driver" occurs in the context of myriad, ubiquitous social influences. Although automobility is legitimized, as Böhm et al. (2006, 3) observe, by "ideals of freedom, privacy, movement, progress, and autonomy, motifs through which automobility is represented in popular and academic discourses alike" it is, as Urry (2006), 19–22) has argued, coercive. In automobilized societies, an automobile is necessary, not optional, for completing essential everyday tasks and obligations. It is a world in which the automobile has become the most significant indicator and terrain "of individual consumption after housing which provides status to its owner/user through its sign-values (such as speed, security, safety, sexual desire, career success, freedom, family, masculinity)" (Urry , 26).

Tobacco control debates have revolved also around the harms of smoking to third parties. This argument has been especially effective with respect to enclosed spaces, resulting in limitations on smoking due to the high risks associated with exposure to environmental tobacco (CDCP 2006). Automobility violence, both to humans and non-humans is not only the immediate physical violence of road crashes that occurs on roads (the killing and injuring of automobilized individuals, of bicyclists, pedestrians and animals) but the slow violence (Nixon 2011) of environmental degradation, global warming, health threatening pollution, the dispersion of micropollutants. This is the "second-hand smoke" of automobility, which kills and injures many more people than does tobacco. It is the slow violence of "externalities" resulting from extractivism (McKie 2023), the transfer of used vehicles to the Global South and, with the increase in the production of electric vehicles, new forms of violence related to the manufacturing and disposal of batteries. As

automobility has permeated the entire earth, there are no locations absent from first-hand (physical) and second-hand (slow and environmental) violence.

Restriction of tobacco use, directly or indirectly, has been the form of intervention that has been defended on the basis that it reduces harm to both smokers and non-smokers. Such restrictions are mostly spatial, restricting where people can smoke (Collins and Procter 2011). In Japan, smoking is forbidden in outdoor spaces such as streets, except for limited and small spaces where smoking is permitted. In the UK, a bill to ban anyone aged 15 and under from ever buying cigarettes passed its first parliamentary vote in April 2024. In Global North urban contexts, primarily in Europe, automobiles have been banned in some urban areas (Tight, Rajé, and Timms 2016), and traffic has been intentionally slowed to nudge people into using other forms of mobility (Gössling 2020). Top-down interventions originating in sustainable urban agendas (Isaksson, Antonson, and Eriksson 2017), and bottom-up initiatives, such as tactical urbanism (Vallance and Edwards 2021), offer public policy means to create pockets of resistance (Jensen and Richardson 2004) to automobility.

Another set of tobacco-related public health policies aim at restricting the sale of cigarettes. Sales to children is forbidden, the number and location of sale outlets has been limited, in Global South contexts the sale of individual cigarettes is restricted or banned. As with efforts to limit smoking, automobile sales locations could be limited and further restrictions on age and other limiting factors could be introduced. Analogous automobility policies could include limiting parking space and garage options, requiring highway and road use tickets, restricting petrol purchases, limiting road access based on license plate numbers. Such policies have been applied in some cities in Europe (Topp and Pharoah 1994). In Vienna, Austria, free parking space is no longer available in the city, in specific areas new housing developments *may not* contain garage options for residents (Knoflacher 2012).

Policies such as these have been introduced and supported by a sustainability argument, not a public health argument. If based on public health arguments, policy makers would have an additional and more powerful, accepted, mostly uncontroversial, and in its tobacco context, legitimated policy instrument. Shifting the argumentation on limiting sales and access from sustainability to public health would open a new domain of possible intervention options. While there is a general policy agreement across European Union countries to utilize policy instruments to encourage modal shifts in transportation choices (Anagnostopoulou et al. 2020; Feneri, Rasouli, and Timmermans 2020; Sun and Wandelt 2021), these instruments more often than not are soft interventions to nudge individuals to use more sustainable or active modes. Applying a gradual and diverse set of sale restricting measures based on a public health argumentation would impact the socialities and economies of automobility: conditions of work, of leisure, of consumption (Featherstone, Thrift, and Urry 2005; Sheller and Urry 2000; Urry 2004); the political economy of automobility (Paterson 2007); social inequalities and transport injustice (Martens 2016; Sheller 2018); as well as injustice stemming from discriminatory application of the law and related practices of policing (Seo 2019).

Punitive tobacco taxation has been another effective way governments have sought to reduce tobacco use. In Australia, a pack of cigarette costs approximately AUD 40 (approximately USD 30 at the time of writing). Analogous automobility taxes include punitive car sales taxes, taxation applied to road use, parking and garage costs, entry and exit to

specific areas such as congestion charging, fuel taxes. Higher taxation on individual mobility should, however, come with financial incentives for other, public or active, forms of mobility including the provision of public transport for free, as has been introduced in some countries.[4]

In recent years, this trend has shifted in the opposite direction with *tax incentives* being introduced to support the purchasing of electric cars. Additionally, public monies have been provided to support the electrification of automobility by assisting with infrastructure costs, such as charging station development. Here, we would note that electrification is non-transformational even on its own terms. Purchasing new electric vehicles does not mean that fossil fuel propelled vehicles will be removed from circulation but simply relocated through the second-hand car market elsewhere, eventually finding their way to the Global South. The mining of the raw materials required for batteries and their disposal will increase the negative health impacts of exploitive work and health conditions in mines and in manufacturing and storage facilities (Hosseini and Stefaniec 2023). In short, incentivizing electrification through subsidies and other measures will result in more automobility. They do not improve "the environment," they are only marginally less destructive, principally because the destructiveness of automobility is the destructiveness of automobility *qua* sociotechnical assemblage or "system," only one component of which is "the car".

Another set of policies applied in the tobacco context are marketing restrictions focusing on how and where tobacco can be marketed. They include health warnings on packaging and in advertisements; graphic labels that not only describe health risks but include images depicting diseases associated with smoking; complete bans on advertisements; bans on tobacco companies sponsoring sports teams or events; plain packaging legislation requiring all cigarettes to be sold without company logos or brand design. Such restrictions are seen as vital in preventing the tobacco industry from reproducing the romanticized tobacco imaginary, described above, that has surrounded smoking in the better part of the last century. In much of the Global North, some or all of these measures have been applied.

Sponsorship of sporting competitions by a tobacco company in the Global North is now unthinkable. In contrast, sporting events are routinely sponsored by automobile interests. Three examples of many are the American National Football League (NFL), which is sponsored by Bridgestone Corporation and Castrol Limited; the Australian Football League (AFL), which is sponsored by Toyota Motor Corporation; and the International Soccer Federation (FIFA), a key sponsor of which is Hyundai/Kia for whom, visitors to the FIFA website are informed, "Football partnerships are a fundamental pillar of Hyundai/Kia's global marketing strategy" (https://inside.fifa.com/about-fifa/commercial/partners/hundai-kia-motors). Public health policies could prohibit sponsorship of these and similar sporting competitions, the offering of cars as competition prizes, and so forth.

Graphic warning labels could be required on automobiles as well as spaces of automobility, such as roads, garages, gas stations, parking lots. Automobiles could be covered with written warnings ("automobility kills" as is the case with tobacco) and graphic warnings (images of injury and death, of environmental degradation, killing of animals and the like). Places in urban areas where accidents have occurred could be equipped with visual images of death and injury and signs (such as crosses)

to mark locations of automobility violence (Bednar 2020). Public memorials could be erected (Nora 1998). Urban areas can be turned into memoryscapes, transforming the imaginary of automobility from a utopian to a tragic and violent one (Edensor 2004).

The automobile and many of the component elements of automobility have been constructed as aesthetic objects of design, of beauty and of culture (Braun and Randell 2021). The automobility imaginary is reproduced at motor shows (Randell 2020), in advertising (Reynolds Tobacco Company 1961), within popular culture and in science fiction (Braun 2019). The automobility imaginary is both component of, and created by, an aesthetic in which automobiles and related infrastructures are constructed as objects of beauty. Public health measures could require these design artifacts to appear as plain, functional objects void of ornamentation and distinctive design features, as are cigarette packages in some countries. As has occurred in the case of tobacco, a transformation of imaginaries and social practices based on recommendations by recognized public health authorities would empower and enable policy makers to move away from soft policies aiming at individual behaviour change and push for more thorough spatial and mobility transformations through alternative mobility policies.

Public health measures have aimed at denormalizing and stigmatizing smoking. What Collins and Procter (2011) call tobacco's "shrinking geographies" have been directly aimed at and proved to be effective in, denormalizing smoking behavior. Measures and campaigns against smoking have sought to transform social norms surrounding smoking and construct negative perceptions regarding smokers, suggesting that smoking is socially unacceptable. These indirect and long-term impacts have been central to comprehensive tobacco control strategies. Within automobility, denormalization has been happening inadvertently with the appearance of an "anti-car" agenda based on sustainability goals, especially in the "Fridays for Future" generation inspired by Greta Thunberg's climate strike that evolved into a global movement of environmentally conscious young people demanding immediate action to address the climate emergency. As have "Truth" campaigns that have highlighted the tobacco industry's reliance on deception regarding the health risks associated with smoking, public health campaigns could aim at exposing deception regarding the health impacts of automobility – death, injury, respiratory diseases, degradation of health by adverse environmental causes – as well as problematizing the claims put forward by safety campaigns.

In short, what is required is a change in strategy by public health authorities. A recent WHO report on the global tobacco epidemic devotes an entire chapter to the efforts, past and present, of the tobacco industry to challenge the established scientific evidence regarding tobacco. While the report does not mention the term "agnotology," the chapter documents the agnotological strategies pursued by the tobacco industry:

> It is no secret that the tobacco industry is our greatest obstacle to ending the tobacco epidemic. This industry makes vast profits from selling tobacco and making people dependent upon it—and they do not want anything to change. But for the sake of public health, and in the interests of our children and future generations, things must change. We are deeply concerned by the fact that the tobacco epidemic is shifting to the developing world, where less-well resourced countries find themselves unable to counter tobacco industry exploitation of new markets—often through blatant interference with public health policy-making. (World Health Organization 2019, 19)

Everything in the passage above is equally true of the automobile industry, including the exploitation of markets in the Global South (Lamont 2012), yet no analogous chapter is present in the WHO's most recent report on "road safety" (World Health Organization 2018). Instead of a statement to the effect that "it is no secret that the automobile industry is our greatest obstacle to ending the tobacco epidemic," the report reiterates the claim that automobility at some unspoken and indefinite future can be made safe.

The passage cited above continues: "Implementing Article 5.3 of the WHO FCTC, which requires Parties to protect public health policy from the tobacco industry, is a critical step to preventing tobacco industry interference in public health policy-making" (World Health Organization 2019, 19). Again, in contrast to public health efforts in respect to tobacco, there is no similar article of the WHO that would "require Parties to protect public health policy from the automobile industry." We would add that although there is a dedicated BMJ journal, *Tobacco Control*, there is no analogous automobility journal.

Were the WHO to contemplate changes such as those recommended here, it would seem safe to assume that massive lobbying resources to prevent this would be deployed by automobile interests (thereby performatively proving the point). Indeed, the lobbying organization that represents the global automobile industry, which describes itself as "the voice speaking on automotive issues in world forums" and whose mission is to "defend the interests of the vehicle manufacturers, assemblers and importers" is, unlike the tobacco lobby, an accredited representative to the United Nations (Organisation Internationale des Constructeurs d'Automobiles 2019).

The World Health Organization views its remit as being the health of *humans*. Given that we now live in the Anthropocene, the epoch of Anthropos, what we mean by "world health" needs to be expanded to include the "health" of our planet. With that expansion the remit of the organization that is called "World Health Organization" will at some point need to include not just the health of humans but the health of our fellow terrestrials and the health of our planet, on which the health of the former depend. That health is incompatible, as we have documented in these pages, and as have many others elsewhere (Latour 2017), with the sociotechnical apparatus that is called "automobility".

7. Conclusion: destituting tobacco and automobility

When reports documenting the impacts of smoking on health first appeared, new technological solutions were developed by the tobacco industry to make smoking "safer." As a result of growing public concerns about smoking and health, cigarette makers introduced a variety of measures: new filter cigarettes that would ostensibly reduce tar levels; the development of synthetic tobacco; boosting nicotine levels in low-tar cigarettes; selective filtration of the most toxic substances; the reduction of carcinogenic compounds. In an effort to produce safe smoking technologies, more than 150 patents related to designing safe cigarettes were filed in the last two and a half decades of the twentieth century (Parker-Pope 2001).

The history of automobility is similarly a history of technological fixes, the most recent being electric and autonomous vehicles. Yet automobile death and injury since the very first road fatality (The Manchester Guardian 1896) has continually risen. Instead of reproducing the discredited safety discourse concerning accidents, human culpability and the promises of self-driving technologies, our recommendation is that

automobility be conceptualized and represented within public discourses as not contingently but irremediably and constitutively violent, thus a health concern (Hosseini and Stefaniec 2023) to humans and the entire planet. Public health policies directed towards tobacco control have had considerable success, at least in the countries of the Global North. Those efforts, such as restricting advertising, generic packaging for all brands, visual images of tobacco diseases, were achieved through nothing less than political activities. We are suggesting a similar politics in respect to automobility violence.

Tabagism is more than simply the consumption of tobacco products (cigarettes, cigars, snuff, chewing tobacco, etc.). A successful global health outcome in respect to tobacco would be a world in which tabagism, an ecosystem that was constituted in the 16th century, has been effectively dismantled: farming, transportation, manufacturing, financing, marketing, advertising, sales, and so forth. Its effective dismantling would be its destitution; approximately the antonym of institution and constitution. Such a world would be a world in which the socioeconomic apparatus that is tabagism has been dismantled. It would not necessarily be a world where not a single cigarette exists, nor are we suggesting that tobacco be included in the ongoing "war on drugs." (This paper has been concerned with what can be learnt from public health policies regarding tobacco, not what policies should be pursued with respect to tobacco.) The policy goal cannot be to "take people's cars away from them" but to create a world with alternative mobility modes not to supplement but to replace automobility.

In "The Question Concerning Technology," Heidegger (1977, 4) observed that "we are delivered over to [technology] in the worst possible way when we regard it as something neutral." Automobility is possibly the single best example of a technology of planetary proportions that confirms Heidegger's point. It is a technology which, as Heidegger put it, we have been delivered over to. It is a form of life that has permeated the entire Earth and has created a hegemonic social order that no individual can escape. To de-stitute the sociotechnical apparatus that goes by the name "automobility", which was constituted in the early part of the last century, requires the dismantling of components that are similar to those of which tabagism is composed. This paper has made the case for a paradigm shift in public health assumptions with respect to automobility. As opposed to the oxymoronic "road safety" discourse, which has at its core the idea that it is the individual driver (in the vast majority of cases) and the technology and the environment (in the remaining cases) that is at fault when assessing the health-related problems of automobility, public health measures should address the entirety of automobility as a sociopolitical complex. We would underscore that the harms of automobility, as we have documented in these pages, go far beyond its direct harms to humans. It is one of the principal apparatuses responsible for the destruction of our planet, our home, the home not just of humans but all terrestrials (Latour 2018). What success there has been in respect to tabagism has required political effort by an array of agents, not just public policy specialists. The same is the case in respect to automobility if the political activities of automobility related interests are to be successfully challenged. A change in how public health professionals and organizations conceptualize automobility, and its associated violence, would represent a significant contribution to those efforts. A century (see, for example, Bel Geddes 1940) of promises and predictions of a safe automobility future, do not constitute *real action* but merely the *appearance of action*.

We are well aware that what we are proposing will be taken by many as ridiculous, as impossible, as an affront to common-sense. The same was once said of the policy proposals described above in respect to tobacco. Yet tabagism is considerably less violent and destructive to our existence and the existence of our planet and its inhabitants than is automobility. This paper is an appeal to public health advocates and organizations to re-evaluate their assumptions and engage with alternative conceptualizations of automobility to those which, for the most part, are routinely disseminated by an assemblage of automotive interests. It might not result in the world living as one, but to finish with a paraphrase from John Lennon's *Imagine*, we hope someday you'll join us.

Notes

1. A WHO publication from 1962 noted that "The present position is that well over 100,000 people are killed in road traffic accidents in the world annually and this number is increasing". By 1990, the WHO (2004, 36) estimate was 999,000 deaths, 1 million if rounded up. By 2002 it had increased to 1.1 million deaths. Approximately 10 million deaths in the last decade of the twentieth century. Assuming a roughly linear increase from 1960, with 100,000 deaths, to 1 million deaths in 1990, this would be roughly 50 million deaths in the three decades between 1960 and 1990. Miner et al. (2024, 1) estimate 60–80 million people killed and at least 2 billion injured.
2. In terms of deaths per number of cars, roads have become marginally less dangerous (1 death/1000 vehicles (1962); 1 death/1200 vehicles (2023)). In 1962 there were approx. 125 million cars in use compared to 1.5 billion in 2024. Number of deaths were estimated at 100 000 in 1962, while 1.19 million in 2024 (but 1.35 million in 2018). These statistics provide for a very rough comparison as they do not reflect on kms travelled, average vehicle use, number of vehicles owned by one family, and a number of other factors. There are of course differences by country.
3. Hauni Maschinenbau GmbH is now part of Körber Business Area Technologies. As reported on their web site: "This will bring the Hauni Group even closer together with the other Business Areas of the Körber Group and offer customers solutions under a common brand – both within and outside the tobacco industry" (https://www.koerber-technologies.com/en/news-stories/hauni-becomes-koerber).
4. See for instance: https://luxtoday.lu/en/knowledge/why-public-transport-is-free-in-luxembourg.

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