

A Media Pharmacology of Face Masks: Between Asbestos and Plastic¹

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Abstract

During WWII a particular type of face mask was designed for and distributed to children, referred to as ‘Mickey Mouse’ respirators due to their distinctive form and colour. Some of these masks contained asbestos in their filters. Asbestos is a toxic substance that is now banned in over 50 countries. Here we have a case in which a material used for protection from toxicity proves itself to be toxic. In other words, asbestos-filter gas masks function as both remedy and poison – a *pharmakon*. As such, these masks embody the double logic of the materiality of the media condition, which is advanced in this article through a discussion of the materiality of masks from what I call a media-pharmacological perspective. The article takes asbestos and plastic as key substances that mediate the relationship between the body and its environment in the form of masks. This translates into a discussion of harm and protection within this material register. The substances here provide a link between the material use and politics of masking with its aesthetics.

Keywords

mask, plastic, asbestos, materiality, image, embodiment

Two decades before the former World War II general and the 34th President of the United States, Dwight D. Eisenhower, coined the term military-industrial complex in his farewell address, two figures who embody this very relationship between the production of commodities and the annihilation of life posed for the press. In this photograph Walt Disney appears to be presenting an illustration of a gas mask shaped into the image of his prevalent character of Mickey Mouse to the US Major General William Porter at the height of WWII, on January 8, 1942². Disney, who was already

associated with the serial production and propagation of images at the time, adds a further dimension to the embodiment of his company's images and brings this figure to the warfront.

The images, both the photograph and the design within it, are eerie. However, the real risk lies not in the images but in the materials used in turning this design into an object. These masks produced during WWII to protect children from chemical warfare often contained asbestos in their filters (Schmidt, 2015). Asbestos is a substance toxic to the human body, particularly to the lungs, that is now banned in many countries across the globe. The regulation of the material did not begin until the 1970s, and it is still not completely banned in the USA on a federal level as of May 2022 (Gerry, 2018; EPA, 2022). Here we have a case in which a material used for protection from toxicity proves itself to be toxic. In other words, asbestos-filter gas masks function as both remedy and poison – a *pharmakon*. As such, they embody the double logic of the materiality of the media technologies that this issue explores. This article offers a discussion on the materiality of masks from what I call a media-pharmacological perspective.

The discussion here is about the respiratory masks and their relation to toxicity and protection, which is a relation that transcends the individual who wears it, as well as the temporal dimensions of an immediate gas attack from which it is meant to protect. On the one hand the gas mask's function is to shield the individual from a sudden toxicity in the breathing environment, whether this be gas warfare during the world wars or tear gas in times of contemporary urban conflict (Parikka, 2014a). On the other hand, the materials the mask is made up of are themselves toxic: they are materials, like asbestos (or plastic, as I address later in this piece), with proven detrimental, even lethal, effects on the individual's health and leading to the poisoning of environments within which the body is situated. In this context, the asbestos in the respiratory mask delineates a context in which *pharmakon* might be read in material terms as it promises both remedy and poison. These masks protect from one type of poison by exposing the wearer to another. Such masks appear to be not only substituting one poison for another, but substituting immediate violence with a slow violence. Introduced by Rob Nixon, 'slow violence' refers to:

a violence that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all. Violence is customarily conceived as an event or action that is immediate in time, explosive and spectacular in space, and as erupting into instant sensational visibility. We need, I believe, to engage a different kind of violence, a violence that is neither spectacular nor instantaneous, but rather incremental and accretive, its calamitous repercussions playing out across a range of temporal scales. In so doing, we also need to engage the representational, narrative, and strategic challenges posed by the relative invisibility of slow violence (2011: 2).

Nixon's framework is important to this paper in locating the effects of the materiality of media not just in the immediate temporality of its use or the sudden effects of such engagement but within longer human and non-human temporalities. These differences in time scale are crucial as the shorter and longer term effects often characterise the move from remedy to poison and back, along with the durations and intensity of exposure to substances. In what follows, I first address the media pharmacological context, linking it to the toxicity of substances, primarily asbestos and plastic, that make up respiratory masks. This, then, is linked to the environmental contexts which renders masks necessities. This is a relationship further complicated by the central role masked bodies play in rendering environments hostile to life.

The 20th century visual and material cultures of the mask in military and urban contexts link two interconnected but temporally differentiated modes of hostilities toward human life. On the one hand, there is the direct violence exerted through the atmosphere in which an active undermining of conditions of human life invokes the presence of the mask in martial scenarios, relating to international, national and urban conflicts alike. The longer duration, on the other hand, relates to environmental devastation on local and global scales. In the contemporary context, the gas mask becomes a remedy perhaps less for an immediate attack and more for a more or less permanent state of air pollution which creates an even more complicated relationship between masks and toxicity. The gas mask is a means through which the ailment it is remedying can be realised (think about the use of masks in mining the materials that

contribute to air pollution or their use in industrial production as a whole) as well as visualised and symbolised (the journalistic or the activist use of the gas mask to communicate a polluted environment or an environmentalist struggle).

Media Pharmacology

If one were to take into account that *pharmakon*, as both remedy and poison, was first applied long before contemporary media technologies, to the very technique of writing itself, one might begin to locate a logic common to technology as a whole, of substituting one set of problems for another. Such reading has a conceptual and methodological value as a materialist media pharmacology because it allows one to attend to the dynamics of substitution in the context of material technologies across temporalities and scales. In his oft-cited dialogue from *Phaedrus* (2009), Plato writes that writing:

will produce forgetfulness in the soul of those who learn it because they will cease to exercise their memory and will put their trust in what is written when they remember (*anamimneskomenous*), in what is outside, in external print, instead of what is on the inside, in themselves; therefore it is not memory (*mnemès*) but reminding (*hypomnesis*) for which you have found the remedy. As to knowledge, it is only the semblance of it that you procure for your disciples, and not the reality (*aletheian*) (275a).

This very early account on an elemental cultural technique, that of writing, suggests that technologies exterior to the subject take something away whilst providing another capacity – they act both as a remedy and a poison. This understanding of techniques and technologies is also present in Jacques Derrida (1981) and more recently Bernard Stiegler (2011).

In looking at the same passage, Derrida criticised the translators of Plato for using the word ‘remedy’ in place of the word *pharmakon*, thus completely erasing the negative implications that are so central to what he was trying to convey by applying the concept to the technique of writing:

One must indeed be aware of the fact that Plato is suspicious of the pharmakon in general, even in the case of drugs used exclusively for therapeutic ends, even when they are wielded with good intentions, and even when they are as such effective. There is no such thing as a harmless remedy. The pharmakon can never be simply beneficial (1981: 99).

Indeed ‘drug’, if one is to rely on the colloquial, might be a better translation since it at least conveys the dual sense of both substance and medicine, albeit one that comes with some negative or side effects. But Derrida thinks we must go even further than that in trying to grasp the full implications of the concept of *pharmakon* as applied to all techniques and technologies: “what is supposed to produce the positive and eliminate the negative does nothing but displace and at the same time multiply the effects of the negative, leading the lack that was its cause to proliferate” (Derrida, 1981: 100).

This logic of displacement is obviously at work in the gas mask with the asbestos filter. The mask is supposed to eliminate the negative effects of chemical warfare but instead displaces one type of toxic material with another, thereby multiplying the negativity in play beyond the immediate attack, in this case toxicity of the gas. But if the lack that is the cause of the mask is ‘breathable air’, then the mask as a technology proliferates this lack, since the mining and the asbestos industries create another totally separate toxicity, an air pollution that will stay in the air, long after the war is over. The multiplication of the negative effects and proliferation of the originating lack creates a more complex situation of toxicity, and Stiegler believes this complexity makes the problem less manageable than it was.

In this ‘malaise’ of culture and civilisation, technics (prostheticity) plays an essential role, because it is eminently pharmacological, in particular as the *system of artificial organs* that it forms in the industrial age. In the course of this ‘perfecting’ (or this improvement), technics comes to ceaselessly compensate for a *default of being* (of which Valéry also speaks) by provoking each time *a new default – always greater*, always more complex and always less manageable than the one that preceded it (Stiegler, 2011: 152; emphasis original).

What seems fundamental in Stiegler's account is the emphasis on the dynamics of shortcomings and substitutions inherent to the technical aiding of the being on a cultural level. In the context of media studies, Marshall McLuhan's (1994) conceptualisation of media as 'extensions of man' presents a complementary reading to a pharmacological understanding of technics offered above, which acknowledges that media take away certain capacities whilst amplifying others. Media both extend and amputate senses and bodily capacities. An apparatus like a telescope or microscope allows one to see scales hidden from 'unmediated' vision but hinders the ocular engagement with the immediate surroundings of the observer. Similarly, the gas mask affords the habitability of a toxic environment to the wearer whilst limiting senses of smell and sight, at the very least. More recently Mark B. N. Hansen conceptualised media pharmacology as distinct from such prosthetic understanding, which he claims "loses its...basis [with contemporary media] since the loss of our agency over our own behavioural data is recompensed by something that has no direct correlation with it, namely, the affordances of social media" (2015: 44). In other words, the data produced by our actions through engagement with social media is not replaced by its direct derivatives, but different capacities that these platforms afford. These are distinct, for Hansen, from the extension / amputation way of conceptualising the effects of media, where what is added and taken away are taxonomically similar. In Hansen's example, the platform affordances are a means to lure users in and to derive data from their engagement with it.

My approach to media pharmacology differs from that of Hansen's. Whilst he is interested in such loss of agency, datafication, and keeps his ambit primarily within experience, I focus on the materiality and material effects of media outside or beyond issues of digital media platforms as they pertain to the body. Such investigation follows the methodological proposition of Jussi Parikka in relation to histories of media: "Media history conflates with earth history; the geological materials of metals and chemicals get deterritorialized from their strata and reterritorialized in machines that define our technical media culture" (2015: 35). My pharmacological reading is informed by this approach to the material composition of media, attending to their histories, presents and futures. The guiding quest here is to materialise the pharmacological approaches to media by considering it across temporal scales and in relation to its effects on the human body and the environment.

Paul Virilio's argument about the relationship between technology and accidents is illuminating of the paradox of creating a toxicity of one's own making via the effort to achieve a form of protection: "every time that a new technology has been invented," he posits, "a new energy harnessed, a new product made, one also invents a new negativity, a new accident" (1995: 81). This line of reasoning can be applied to many technologies: the invention of the car is also the invention of the car accident, and the same goes for aeroplanes and networked technologies. In the case of the introduction of the gas mask in manipulated atmospheres, the reverse is true. That is, the negativity is invented first, and the technology of the mask becomes, as it were, its accident. Here, I am interested in this accident and its toxic materialities.

Of course, it can be claimed, in relation to war technologies and the defences against them, that this reversal is often the case, since military technology by definition is a negative technology in its relation to life, a technology that aims to limit life and its potentials for others. However, when we move from gas masks against warfare to gas masks against air pollution, the originating technology will become even more complicated: unlike munition containing gas that can be called a negative technology, pollution is not a technology per se that triggers the accident but the end result, an aftereffect, of many technologies and the materials used for them, including the material used in masks themselves, which then necessitate the mask as protection.

Recognising the movement between technological remedies and such internalisation, Paul B. Preciado described the contemporary era as 'pharmacopornographic', where the *pharmakon* goes beyond external techniques and into the skin. Today, the particular biopolitics of these materials operate on the level of a pharmaco-power that has to do with both desires (the symbolic) and the organisation of labour and production (the material) (Preciado, 2013: 144–235). Preciado's identification of pharmaco-power operating in the body and under the skin, as opposed to being external to it, is rather revealing given that Derrida thought *pharmakon* is that which render the difference between outside and inside: "It can only be out of something like...the pharmakon that the strange difference between inside and outside can spring" (2013: 103). The remedy and poison dimensions are always relational and contingent upon scale and duration. That which is poison to the pathogen is remedy to the human. Such *pharmakon* comes from the outside into the body, causing a new set of problems

whilst solving the original one. This importance of the inside and outside is highly relevant when dealing with the mask, which revolves around the opposition of public and private, internal and external. What is central to the understanding of the mask as pharmakon is exactly the way in which it renders the difference between inside and outside. But it becomes even more crucial in the case of asbestos, since its primary function is to insulate (as an insulation material in devices and buildings), to prevent what is outside from coming inside. My analysis is focusing here on the inside and outside in this material context.

To unpack the material issues that pertain to the mask and why it may be an object of enquiry within media theory, and more specifically a materially oriented media pharmacology, I propose to consider the mask as both image and medium. For this taxonomy I employ German art historian Hans Belting's theory of images as developed in the 2011 monograph *An Anthropology of Images*. Belting proposes examining the visual field through a set of three fundamental categories: 'the triad image-medium-body' where the "medium refers to the technology or artisanship that transmits the image and to whatever it is that gives visibility to the image" and "'body' refers to the living body, the spectator" (2011: 15). According to Belting, the medium and the body are very much comparable to each other: "What in the realm of bodies and objects is their matter, in the world of pictures is their medium. As images by definition have no body, they need a medium in which they become embodied" (Belting 2011: 13). Belting's approach acknowledges that bodies and media are of a similar nature through their materiality. What we call pictures, from this angle, are embodiments of images. This is in line with visual studies scholar W. J. T. Mitchell's definition of an image as "any likeness, figure, motif, or form that appears in some medium or another", along with that of a medium as "the material support in or on which an image appears" (2005: xiii). Hence, the image itself, unlike the picture, is a category that emerges through perception of the material world by the observer and the ways in which it is found in material media.

What is the status of the mask, then, from this angle? A mask is a medium, as much as an image – it can move from body to body whilst maintaining its materiality. Then there is a double embodiment here – not just by the human body, but first by the materiality of the mask itself (Belting, 2011: 24). This is important because it signals a

divergence from other sorts of diffusion of images, for example of mimetic facial gestures or a digital image file. It demarcates a specific issue that pertains to the materiality of the visual. One can take-off this image (a material mask) and hand it to another body, so to speak, whilst maintaining its materiality. The mask's material status is particular in this regard as it uses human bodies to appear serially. This summons up one of the formative definitions of media, as previously noted, as 'the extensions of man,' captured in the subheading of McLuhan's *Understanding Media* (1994). The mask from this angle can be discussed as an extension of the human body – a prosthetic medium that resides on the body. Hence, it is not just the art historical definition of the medium as the materiality of the picture that allows me to categorise masks as media to offer a material media pharmacology, but also this early media theoretical understanding as prosthetics.

Masks and Asbestos

A short article published in *The New York Times* on August 16, 1916 offers to explain 'How Germans Fight Gas', expounding in its subtitle: 'Masks, Elaborately Tested Behind Front, Render Men Immune'. The potential of the gas mask was realised around the same time as the weaponisation of toxic gases – the former affords a temporary resistance to acts of denial of breathable air, which constitute the mode of operation of the latter. In other words, a technique of violence becomes operative with corresponding techniques that render the exercisers protected from the effects of this aggression. Read alongside the anti-masking legislations aimed at limiting the use of gas masks by protestors (Soncul, 2015), it becomes apparent that such complementary use is still central to the operation of 'negative air conditioning' (Sloterdijk, 2002: 47) - by the police, who also enjoy the protection granted by their state-issued gas masks whilst targeting with tear gas the crowds who are not subject to this legal exception.

Sloterdijk (2009) conceptualises these manipulations through 'air conditioning', as a way to make sense of the significance of the 20th century techno-politics of the air and inhabitability, in relation to the modern subjectivities it produced – a dynamic in which the conditions produced new modes of subjectivity, which in turn came up with new ways of conditioning. He demonstrates how through the 'gas warfare' of WWI and the 'genocidal gas extermination' of WWII, "the active manipulation of breathing air first

became a cultural [hence, a political] matter” (2009: 47). Such techniques of mass hostility are originary moments in which the breathing air became the liminal site between life and death.³ These techniques disrupted the human body’s respiratory function through introducing malignant agents to the surrounding air.

For Sloterdijk the conditioning of the air in a ‘negative’ way to negate life, a thanatopolitics of habitability via breathability, emerges in this era and extends into the present in different forms. In the case of the gas mask, it is the asbestos-bearing filter that prevents the poisonous gas on the outside from coming inside the mask, and thus into the body. Asbestos is also used in buildings and ships as insulation against fire as well as cold. The use of asbestos in buildings prior to its restriction was essentially for sheltering and protecting organised human activity, to render certain places inhabitable. Therefore, asbestos was a remedy to a very fundamental human deficiency, its inability to survive the elements without shelter. In turn, it was proved to be deadly over time. The tracing of asbestos and its use in masks and infrastructural components presents a complicated story that relates to how industrial materials that served an essential function in the building of modern media and environments turn against the people who are part of these ecologies.

Asbestos is an airborne toxic matter with a lethality comparable to the poisonous gases used in wartime, but, unlike those, it does not kill immediately. The difference between them is a matter of time, between immediate death and slow violence. In fact, this slowness is one of the reasons legislators around the World were able to take until the 1980s to start regulating and banning the use of asbestos. When asbestosis occurs, it is typically 10 to 20 years after the initial exposure to asbestos. The time between the beginning of exposure to asbestos and diagnosis of mesothelioma – the type of cancer that follows long-term exposure – is usually 20 to 30 years or more (American Cancer Society, 2015). This is also why 125 million people around the world are still exposed to asbestos in the workplace annually, according to the World Health Organization – an exposure that results in thousands of fatalities related to asbestosis and mesothelioma annually. A similar number of deaths are also connected to exposure in homes (WHO, 2018).

Since asbestos particles permeate environments, it cannot be contained – at least not without orchestrated effort and certainly not permanently. As Litvintseva (2019) notes,

due to the insufficiency of available methods of containing this matter en masse and recognising how it lingers in the environment, there is no possibility of fully eliminating it but only deferring potential toxicity temporarily. The protection against asbestos, hence, is a major issue. Even in places where asbestos has been banned and the mining has stopped, old houses insulated with asbestos are still intact, mostly because the demolition of such houses will release asbestos particles into the air. When the Twin Towers collapsed after the 9/11 attacks, the air on the island of Manhattan was permeated with chemicals, not limited to but including asbestos that had been used in the construction of these buildings (Tuminello et al., 2019). The actual damage caused by the airborne asbestos in Manhattan around this time will become clearer in the coming decades, as its residual effects become known (Smith et al., 2021). This means that the effects of natural disasters such as earthquakes and tsunami that demolish buildings that were constructed before any regulatory effort will be increased due to the matter released into the air. The same is true for the already disastrous effects of war and conflict (Nancy, 2014).⁴

Nixon states that ‘slow violence’ is not only a type of violence that ‘occurs gradually’ but also ‘out of sight’ and is disregarded because violence is “customarily conceived as ...erupting in to instant sensational visibility” (2011: 2). Indeed, one of the other challenges to putting in place protections against asbestos is that asbestos-contaminated environments are invisible to the human eye, unlike for instance visible gases. Masks are used not only for its excavation but also for its containment. One of the ways in which the material itself becomes visible is when it is used in specific media, which acknowledges its presence – the respirator in this case – that render it visual and communicable in the image form. Asbestos’s persisting prevalence in buildings is partly due to the difficulty of its extraction, which demands an array of techniques to mask the bodies of the specialists, similar to the use of personal protective equipment (PPE) masks in Ebola Virus or COVID-19.

Therefore, the relation of the mask and the material asbestos is indeed a very complex form of *pharmakon*: masks are used as protection against asbestos in order to mine, produce and make use of the material in one of its 3000 applications worldwide (Asbestos Safety and Eradication Agency, n.d.). They are used in order to extract the harmful material in places it has already been put to use. They lend a visibility to this

invisible airborne danger and in the case of the gas masks used in the world wars, they were put into the filters of the mask to protect children as well as adults from the immediate effects of chemical warfare with disregard to any harmful effects.

Asbestos is not the only material in respiratory masks that is associated with toxicity. There are, indeed, more common and pervasive materials – such as plastic polymers. Many masks which have industrial use such as the 3M 4000 series of respirators, which offer “protection against many gases, vapours and combination particulate hazards found throughout industry” uses polypropylene, a common thermoplastic polymer produced using the petrochemical propene (3M, 2010). Such masks have wide-ranging uses across industries that necessitate immediate protection from harm to the body of the worker. In doing so they also make possible the functioning of industries emitting greenhouse gases. The problem, again, is with the logic of substitution – the pharmacological *modus operandi* of the capitalist machinery of production – which temporarily alleviates certain problems, the toxicity of working conditions, and does so by creating new ones, the longer durational and environmental effects. The broader politics of plastic, in this way, is resonant with that of asbestos within the framework of a material pharmacology of the mask.

Masks and Plastic

Face masks have been widely recommended and used during the COVID-19 pandemic to limit the transmission of the disease and control its trajectory. The Western nations were relatively slow with the uptake, in comparison to the peoples of East Asian nations who were more familiar with its benefits due to the 2002-2004 SARS epidemic (Burgess and Horii, 2012; Duffin and Sweetman, 2006; Rzymiski and Nowicki, 2020). Face masks did eventually become the norm during the COVID-19 pandemic through calls for their universal use as well as due to legislative efforts (Brooks et al., 2020). The wide global take-up of these masks results in a new issue due to their materiality. Xu and Ren (2021) frame this issue as to prevent ‘masks from becoming the next plastic problem’. Studies indicate billions of disposable masks were discarded monthly during the pandemic, putting it on par with the plastic bottle pollution worldwide (Xu and Ren, 2021; Fadare et al., 2020). Amongst the polymers used in disposable face masks, polypropylene stands out as “one of the most

commonly produced plastics and the high usage has led to a large waste accumulation in the environment” (Xu and Ren, 2021). When such disposable face masks enter “the environment ([through] disposal in landfill, dumpsites, freshwater, oceans or littering at public spaces)” these masks become a “new source of microplastic fibers” (Fadare et al., 2020). These refer to particles of plastic that are smaller than five micrometres in each dimension (Davis, 2016: 191). They enter into the food chain via waterways and negatively affect marine life across the interconnected ecologies, making the management of plastic an increasingly complicated issue (Biamis et al., 2021).

Indeed, the prevalence of the plastic is far beyond their use in masks. Since the early twentieth century “*things* have become decidedly synthetic to the point where plastic now appears as the archetypal material of invention, mass consumption and ecological contamination” (Gabrys et al., 2013: 2). Whether we are talking about the media that surround us or commodities on offer, plastic seems essential to the material ecology of the contemporary context (Taffel, 2016). Some take this ‘lightly’, Amanda Boetzkes and Andrew Pendakis note, underscoring plastic’s “pleasurable superficiality, its flexibility, its ‘lightness”” (2013). These ideas associated with plastic come with ideological presumptions dating back to a time when oceans were considered as capable of infinitely devouring the waste produced year by year. What we ended up with instead is 80,000 tonnes of plastic floating in the Pacific Ocean, a weight “equivalent to 500 jumbo jets”. This mass of plastic, made up of 1.8 trillion pieces, has come to be known as the Great Pacific Garbage Patch (GPGP), or the seventh continent with an “estimated surface area of 1.6 million square kilometres...three times the size of France” (Albeck-Ripka, 2018). Such agglomeration lends visibility to the scale of the problem and provides an entry point at which one can grasp and symbolise the presence of plastic within oceans. The viral video that featured marine biologist Christine Figgener (2018) pulling out a plastic straw from the nostril of a sea turtle proved to be another crystalline moment that expressed the harm that plastics have on marine life. When activist and journalistic uses of visual media provide figures with which to understand and raise awareness about these ordinarily out of sight modes of violence, they bring forth direct relationships through which the politics of harm and cure may be read, focusing on this matter that is also to be found in the mask.

Sy Taffel's 2016 contribution concerns the range of plastics used within media devices and how these materials contribute to the broader issue of e-waste. One of the key detriments in this context has to do with the complex effects of chemicals used in the production of plastics on the endocrine system (Lehner et al., 2019). A recent study that explores plastic pollution in relation to human health notes “plasticizers, pigments or stabilizers are added to give the desired properties of the final product, e.g., their flexibility, color, and stability. Nowadays, thousands of different chemicals are currently used for these purposes, and it is known that some of these chemicals can leach out during the product life cycle into the environment, leading to endocrine disruption or acute toxicity when exposure to organisms occur” (Lehner et al., 2019: 1752). Taffel reflects on the harmful effects of such materials, referred to as endocrine disrupting chemicals (EDC), to the endocrine system, and how these disrupt the Paracelsus principle central to pharmacology “which states that “the dosage makes the poison”, [which] implies that there are safe levels of exposure to otherwise harmful substances [...] Numerous studies of BPA and phthalates suggest that adverse health effects may occur at low dosages but not at the higher ones used in traditional toxicological testing procedures” (2016: 364). Recent research shows the widespread occurrence of phthalates (an EDC) in face masks used during the COVID-19 pandemic (Xie et al., 2022). Exposure to EDCs increase “the risk of adverse health outcomes, including cancer, reproductive impairment, cognitive deficits and obesity” (La Merrill et al., 2020). Overall plastics and related chemicals involved in their production have wide-ranging and complex effects on human health which may be characterised as toxic (Thompson, 2013: 164-182.)

Tracing the materiality of the mask from the increasingly regulated asbestos into the ever-complex issue of environmental and health impacts of plastics, we can see persisting material politics that we can attend to through the concept of pharmakon. Similar to asbestos, the current situation with the material circulation of plastic (as well as EDCs such as BPA and phthalates) and its use in face masks offers a complicated picture in terms of material protection and harm. The media pharmacology of it pertains to protection from one type of harm (the transmission of pathogens in this case) by exposing oneself to another type of toxicity (EDCs) which has a further toxicity to the environment it then inhabits (micro/plastics). A similar dynamic is present when one considers the protective mask used against particulates in industries

which aims to protect the lungs of the individual body but enables the unleashing of poisonous gases into the air as well as having a comparable afterlife leading into micro plastic pollution.

The problem is less with what substitutes which material, but that the materials chosen to address problems turn out on closer inspection to be pharmacological, with each substitution “multiply[ing] the effects of the negative, leading the lack that was its cause to proliferate”, to quote again from Derrida (1981: 100). Or, as Stiegler contends, “*provoking each time a new default – always greater, always more complex and always less manageable than the one that preceded it*” (2011: 152). It must be noted here that the asbestos and plastic used in the production of masks are part of a much larger problem that has to do with the toxic materialities of media across contexts. The range of toxicities attributable to the materials of face masks shows the mask delineates the structural issues pertaining to the capitalist mode of production, emerging as a direct substitute to the contact of lungs with toxic air. Further, the prevalence of these materials in supply chains across sectors emphasises a negativity inherent to technological and remedial interventions of industrial capitalism. What it makes crucial in this context is that while the study of media technologies has been able to focus on the remedies they have offered throughout modernity, the focus on affordances and functions for example, the current environmental conjuncture makes the poisonous dimensions of such *pharmakon* an immediate concern.

Conclusion

Weisenfeld writes that the popular cultural uptake of gas masks by the civilian population ahead of WWII in Japan “pointed to the posthuman condition of wartime, when people would be unable to survive the potentially toxic atmosphere of the metropolis” (2014: 180). The gas masks of the war period carried the war zone into the urban environment and made a military technology part of the daily lives of civilians. After the threat of weaponisation of the toxic air was over, the gas masks of wartime gave their place to the anti-pollution masks of peace time. Indeed, the gas mask became a symbol of the ecological movement, and mainstream environmental discourses, in the US from the 1970s onwards. Finis Dunaway notes this transition as a shift from anxieties that surround the Cold War, where the annihilation of life was

imagined as an instantaneous process, to an understanding of a slow and gradual shift of the inhabitability of the urban space (2008: 71–74). Mark Fisher follows a similar reading in this oft-quoted passage from *Capitalist Realism*: “there is no punctual moment of disaster; the world doesn’t end with a bang, it winks out, unravels, gradually falls apart” (2009: 2). The slow violence of ecological crisis within which we find ourselves is not characterised by a dramatic rupture. The use of gas masks in this activist context allows the wearers to achieve the ‘instant sensational visibility’ attributed, according to Nixon (2011: 2), to conventional conceptualisations of violence. The use of gas masks puts a face to these processes and renders them visible – in cityscapes, due to pollution. They also become more permanent as what they are supposed to remedy turns into a gradual falling apart.

Air pollution is without a doubt less immediate and not as spectacular compared to gas warfare. Its effects play out on various temporal scales, not only the near future of the urban dweller, but also jeopardising the inhabitability of the planet for many species. Since 2008, over half of the global population has lived in cities, and as such is subjected to the conditions of urban life as they emerge in relation to the global forces of capital (World Bank, 2018). The breathability of the air for most of the human population is a daily concern in the conditioned air of cities – not just through the conditioning of immediate surroundings in short temporalities that AC units may evoke, but also in terms of how the urban formations modulate their air. The shaping of the Earth to form cities is rendered possible with the release of toxic materials into the air, which in turn become traceable in the formation of urban atmospheres.

A mask as a breathing apparatus affords the literal habitability of environments that are inhospitable to human life, but this is also the reason why it becomes a symbol for other kinds of mobility of the body into different environments. The figure of the masked individual evokes a person temporarily venturing into an uninhabitable environment. This might be the urban environment that has temporarily been made uninhabitable by violent attacks, or the top of Mount Everest or the depths of the ocean – or, in the future tense of science-fiction, it might be space, the final frontier (Genta and Rycroft, 2003). To make a place inhabitable in this context would be to create the circumstances in which its potential inhabitants can live without the remedy of a mask. My point about the status of the mask in contemporary cities against these

imaginaries is this: When gas-masked masses are seen in what is already habitable, even desirable locations, such as urban centres, the mask becomes a warning sign that these places are becoming inhospitable to the human body.

I started this article with a particular image, that of the Mickey Mouse gas mask in the context of the global war. A contemporary version of these masks, Kilo Design's WOABI Play air-pollution mask⁵, demonstrates a 'playful' and compartmentalised – Lego-like – engagement in its materiality. The mask itself is designed like a toy: "The mask, suitable for kids from 6 years of age, comes disassembled with an educational manual. WOABI's modular system encourages kids and parents to put the parts together, piece by piece, to build the finished product. The interaction helps them to understand the product's functionality and introduces a dialogue on pollution and protection. The different coloured parts act as a simplifying tool for communication around the product's functionality and allow kids to customize the mask the way they like it, giving them a sense of ownership and autonomy over their own safety" (Kilo Design, n.d.).

In a 2018 report, the WHO declared that 93% of children worldwide inhabit environments where the air pollution levels are above the levels identified as safe in their guidelines. 'Ambient air pollution' and 'household air pollution' are major contributors to respiratory tract infections. In 2016 alone these infections resulted in 543,000 deaths of children younger than five (World Health Organization, 2018c). The silicone front-part of the mask is justified to provide "effective protection while remaining sensitive to the social needs of its users", referring to the semi-transparent nature of the material. This screened / mediated and distorted image of the face is far from an unmasked one. Like the Mickey Mouse mask, these are also colourful and designed for children. However, rather than the flatness of the facial images that the historically older instantiation indicates, the images here are much more individualised, transforming significantly from one body to the other.

Such movement from the martial mask to a more everyday mask is illustrative of a move from the absolute negation of life in the context of toxic gases to the insidious attack on life by industrial capitalism – a gradual falling apart. A media pharmacological reading of the materiality of these technical objects helps us interpret how particular matter may move from occupying the position of remedy to poison. This paper

explored how masks which are used to support breathing in otherwise inhospitable milieux contribute to the slower but more complex deterioration of environments and human health through a materialised media pharmacology.

Whilst the concept of pharmakon has an established lineage of applications in relation to media technologies (Plato, 2009; Derrida, 1981; Stiegler, 2011; Hansen, 2015), this paper pushed the framework into a firmly material understanding of media in dialogue with theorists who provide an embodied and material reading of the pharmakon (Preciado, 2013) and those who emphasise the material dimensions and beyond-phenomenological durations of media (Parikka, 2015). I attended to the relationship between toxicity and protection that undergird these masks including and beyond the individual wearer, within different temporalities. The temporal mode of analysis has been instrumental to the kind of media pharmacology I performed here, since it is exactly the moving of the register from protection against immediate harm to a slow violence (Nixon, 2011), which is sustained by the same materials at different speeds, that renders asbestos and plastic *pharmakon*. Paying attention to material effects across time offered an analytical basis for the paper. Along with exploring these respiratory masks, the contribution offers a pharmacology of media within a material register as a conceptual and methodological gesture.

The longer durational harms have been linked to the presence of asbestos and plastic in different ways within environments. These include the toxic effects of asbestos fibres on the human body as well as those of plastic and plastic-related chemicals such as BPA or phthalates. Further the masks I explored have direct and indirect industrial uses which make them agents of air pollution and environmental degradation. Concurrently, these masks offer a mode of visibility to the problems for which they are used as protective measures, which expresses a further intricate relationship between visibility and materiality that masks as images and media articulate.

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Notes

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- ² Animator Walt Disney hands over his sketch of a Mickey Mouse gas mask to Maj. Gen. William Porter in Washington, D.C., Jan. 8, 1942: <http://www.apimages.com/metadata/Index/Associated-Press-Domestic-News-Dist-of-Columbi-/911c732ddee6da11af9f0014c2589dfb>
- ³ Industrial pollution of urban centres or the toxic effects of wild fires or volcanic eruptions predates these instances. However, Sloterdijk's scope is mostly on the political as it relates to the martial context here.
- ⁴ For a similar assessment on equivalence of catastrophes see Jean-Luc Nancy (2014) *After Fukushima: The Equivalence of Catastrophes*.
- ⁵ WOBI Play Mask: Kilo Design: kilodesign.dk/work/woobi/

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