

Hill, David ORCID logoORCID:

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The Injuries of Platform Logistics

Back in 2012, Amazon ran a television advertisement with the tag-line: ‘Connecting your mouse to your front door was our moon landing’ (see YouTube, 2012). The trick here is to draw attention to the experience of consumption whilst passing over the process of production that makes it possible, mobilising a *space race* rhetoric that is selective in the spaces that it acknowledges and that distracts the viewer from this device with its allusion to the revolutionary high-tech. The impact of digital platforms demands much closer attention to the geographies they form, and the infrastructure and logistics that sustain them (see Burrows, 2005; Peters, 2015; Plantin & Punathambekar, 2019). Everything that is traded and distributed online utilises a material infrastructure, and labour and transport processes remain vital. This is something that can get lost in the marketers’ gloss of the *weightless economy*, where the exchange of goods and services is imagined without the gravity of physical labour. Online retail still requires things of heft and substance to be shifted through space, and that means people doing the shifting in spaces that require critical scrutiny.

The danger is that we lose sight of the materiality of buying online when we focus excessively on the experience of consumption, on clicks and swipes at screens, and not on the productive processes that bring our goods to the doorstep. By connecting your

front door to your mouse – and then to your smartphone and various other networked devices – online retailers like Amazon are obscuring space rather than overcoming it. This is handy for the consumptive imaginary, as it renders invisible the spaces that our products move through. With deliveries now next-day, even same-day, we have become disconnected from logistical space-time. Longer delivery, of a few weeks say, might give some indication of the stages involved in bringing your goods to your doorstep: manufacture, freighting, warehousing, couriering. This in turn brings to mind the various spaces that a product would move through, from the factory to the port, the warehouse to the home. But the speed of delivery now is such that the process of bringing an item into your world is too fast to be fully perceptible. Important sites of labour evaporate from our awareness, as purchases arrive without a trace of their exteriority.

This article offers a typology of injuries enacted by platform logistics, taking online retail as its focus and using Amazon as an exemplar. The typology is sustained by the idea that subtle but negative shifts in perception brought about by digital platforms not only mask the harm that is done to those who labour behind the platforms but constitute a form of injury themselves. *Cognitive Injury* occurs when platforms act to conceal their operation from the awareness of users (see Chun, 2016; Langlois & Elmer, 2019; Srnicek, 2017). In the first section, it is argued that the technological infrastructure and

speed of transactional satisfaction in online retail subjectivises users into a mode of unconscious consumption that dislocates buying online from the geography of fulfilment. This is a kind of psychological injury entailed by not being cognisant of the processes you make yourself part of when you engage with digital platforms. *Hidden Injury* is enacted on the invisible labour that sustains platform functionality, a precarious workforce that labours under harsh conditions and within hostile spaces, somewhere below the cognisance of the user (see Irani, 2015; Scholz, 2017; van Doorn, 2017). The second section examines what the efficiency and obscurity of platform logistics in online retail hides: the injurious working conditions of the people tasked with delivering our orders on time. *Moral Injury* speaks to the way that platform logistics, in concealing from awareness the conditions that sustain its operation, attacks the ability of users, or of a society at large, to act with responsibility. In the concluding section, it is argued that the speed and obscurity of digital consumption creates a pollution of the sensible that attacks moral awareness and causes responsibility to waste away. This argument is drawn somewhere between the work of Emmanuel Levinas (2007; 2008) and Paul Virilio (1998; 1999).

Taken altogether, the physical and emotional injury endured by logistical workers is hidden by a mode of digital consumption that does not fully engage our awareness, and these two injuries – cognitive and hidden – combine to create a kind of moral injury.

Cognitive injury affects the individual consumer (the ‘I’); hidden injury affects those others who toil in the underworld spaces of consumption (the ‘Other’); whilst moral injury consumes the ground that would allow the individual and the other to stand together – to form a collective or a responsible community (the ‘We’). By setting out this typology it is hoped that what follows can contribute towards a critical engagement with logistics as a spatial practice of circulation, highlighting the violence and injury that underpins this now ascendant calculative logic (see Chua, Danyluk, Cowen & Khalili, 2018), and posing questions about its role in relation to routine and everyday use of digital platforms (see Plantin & Punathambekar, 2019). Such an engagement is taken to be applicable beyond the narrower focus on online retail, and necessary for understanding that the power of digital capitalism lies not only in its ability to collect and store data, but to use this to manage the trajectories of the world – of commodities and of people.

Cognitive Injury: Online Retail and Unconscious Consumption

Benjamin Bratton (2015: 186) suggests that Amazon’s ‘platform logic’, its coordination of users, objects and data of various sorts, aims at the total organisation of all the world’s physical commodities. To understand a claim of this sort, we need to consider

the ways in which Amazon makes itself available to customers and encourages them to consume – and then how it fulfils this.

Platform capitalism denotes a system where a small group of powerful technology firms have vertically integrated a vast range of services and functions that they then provide to others. Platforms are defined as ‘digital infrastructures that enable two or more groups to interact’, bringing together ‘customers, advertisers, service providers, producers, suppliers, and even physical objects’ (Srnicek, 2017: 43). A platform not only connects users but provides a ground for all their activities. ‘Platforms are platforms,’ suggests Tarleton Gillespie (2010: 351), ‘not necessarily because they allow code to be written or run, but because they afford an opportunity to communicate, interact or sell’. This grants the companies behind the platforms privileged access to a range of relational, migratory and transactional data. Platforms have a shop front, where they provide some service or other to users, but also a back of house where the information that this generates can be put to work. Whilst platforms come in many different forms (see Srnicek 2017: 60-64), an engineered obscurity is at the heart of their functionality (see Langlois & Elmer, 2019). We see this, for example, when labour platforms present themselves as tech companies rather than, say, taxi firms; when streaming platforms convince us to rent music rather than buy, without explicitly letting on to this

transformation in ownership; or when a company that appears to be in the business of social networking is really in the advertising game.

Amazon has successfully lodged itself in the minds of users as an almost infinitely vast store, but it has also become so much more than a retailer. Today it is involved in television, cloud computing services, consumer electronics, labour exchange, robotics, healthcare, actual aerospace travel, and more besides, an expansion best characterised as *infrastructuralisation* (see Langlois & Elmer, 2019). Amazon has heavily invested in data centres to gain a foothold in cloud platforming, renting out its IT infrastructure to other companies and gaining access to their data in the process (Srnicek, 2017: 60-64). Amazon is essentially one of the largest server landlords in the world, and its cloud computing platform, Amazon Web Services, makes it a serious player in the material infrastructure of the internet (Cubitt, 2017: 17). Through Mechanical Turk, Amazon has developed its own hugely successful lean labour platform. Mechanical Turk is a kind of ‘artificial artificial intelligence’ (Irani, 2015: 723) that offers speedy web solutions by using humans instead of algorithms, which can take too much time to develop (725). It was founded in 2005 after Amazon found that actual artificial intelligence did a poorer job of locating duplicate products on its webpages than human perception (Aytes, 2013: 79-80). Mechanical Turk is an online marketplace for discrete bits of labour, allowing companies to hire workers to perform Human Intelligence Tasks for a few quid a time.

Trebor Scholz (2017: 16) reckons that this stands as ‘an influential template for the future of work’; this would be a future of lean, just-in-time and piecemeal labour facilitated via app, and one perhaps not so unfamiliar to those presently caught up in the gig economy (see Hill, 2015: 19). At the heart of all of Amazon’s endeavours is an almost unrivalled access to information. Ultimately, data has become its stock-in-trade and its ability to put this data to work has established Amazon as a powerful and ubiquitous force within platform capitalism.

Amazon is a good example of what Wendy Chun (2016) describes as the disappearing from consciousness of ‘habitual media’, even when its infrastructural presence has never been writ larger on the world – a process of withholding from awareness what ought to be at the centre of our attention, or, cognitive injury. We see this in the way that Amazon retains an image as an online retailer whilst essentially being in the business of digital real estate. More specifically, we can also find this process at play in the way that we consume through Amazon. Martin Dodge (1999: 7) has observed that Amazon’s website is not only ‘its storefront to the world’ but also a form of geography itself – a ‘geography of the screen’. This terrain has altered over the years, first as mobile internet allowed for the website to be accessed anywhere, then as the app streamlined access to all the products contained in the store, and now with devices such

as the Amazon Echo and the Amazon Dash reducing navigation and consumption to their simplest forms.

The Echo is a speaker that speaks to you. Once set up in a room, it listens in the background, ready to respond to the user's spoken requests, be that ordering products from Amazon, streaming songs via Amazon Music, reading newspaper articles aloud, or engaging with third party apps such as Deliveroo, the takeaway delivery service. The Dash is a much simpler bit of kit. It is essentially just a button, tethered to a branded product. A regular consumer of, for example, a particular brand of laundry detergent or razor blades can hit the button when running low and their stocks will be replenished within a few hours. Making products as accessible as possible, through an easily navigable website (managed by 'Turkers') or an app that can be accessed anywhere via smart phone, and making ordering as simple as asking aloud in your living room or hitting a button on top of your washing machine, is key to Amazon's success. The speed that Amazon aims for is not just in getting your products from the warehouse to your front door; the longer you have to wait to access a purchasing platform, or the more stages you have to go through in placing your order, the more likely you are to get cold feet, and so the quicker purchases can be made, the better. The Dash is the perfection of this attempt to streamline the number of steps in a transaction, although one-click purchasing via the website or app has long encouraged the haste in purchasing that

minimises the process. This minimisation allows purchasing to fade into the background, or even to become the background to our everyday experience. Amazon is not a successful platform player simply because it umbrellas out into industry and cloud computing and so on, but also because it has successfully made its platform ubiquitous within the user's environment.

Platform ubiquity encourages unconscious consumption. When we are constantly connected to retail environments via networked technologies, we come to inhabit an omnipresent marketplace, a condition that is promoted under the name *u-commerce* (or, ubiquitous commerce). Under these conditions, consumers are 'always on', potentially never not available to consumption, located within a marketplace that has no temporal or spatial constraints. As McGuigan and Manzerolle (2015: 1832) argue, this casts consumption as an 'unnoticed component of social reality', entrenched, more dug-in than ever, but because naturalised also barely perceptible. Purchasing becomes automatic, even taking place at a level beyond the consciousness of the consumer. Adam Greenfield (2017: 36) suggests that this is precisely the point of devices such as the Echo and the Dash, and the Internet of Things in general: 'to short-circuit the process of reflection that stands between one's recognition of a desire and its fulfilment via the market' by transforming intimate space into one of constant technological upgrade, subscription, and unthinking resupply of consumables.

Amazon's platform infrastructure acts as a central nervous system, embedded in geographies whilst creating a shop-floor wherever we desire it. But this seemingly frictionless and omnipresent marketplace hides its weight behind interfaces. When consumption becomes this unthinking, when our products are only one click or a 'Hello Alexa' or the push of a button away, and when they arrive next-day, even same-day, the platform acts to conceal the labour that brings our purchases to the doorstep. The *taken-for-grantedness* of everyday digital platforms (Gehl & McKelvey, 2019), when coupled with modes of consumption that work on the preconscious or unconscious, on the fact that we are not fully paying attention (Langlois & Elmer, 2019), renders the labour behind buying online invisible. This 'hidden abode of production' at the heart of commodity fetishism is hardly new (Marx, 1990: 279), but what is remarkable is the speed and ease with which the concealment of social relations can be facilitated. Tracking purchases through the website or app presents an abstract geography – *package has shipped; out for delivery; your item has been delivered* – that gives the illusion of smoothness behind the speed. This is cognitive injury. The instantaneity inherent to ubiquitous platforms, the speed not only of delivery but also of the transaction itself, leads to what Paul Virilio (1998: 16) calls a 'generalized arrival': the goods arrive without seemingly having ever left. Unconscious consumption affords no consideration of departure or of journey. Things just appear.

Hidden Injury: Order Fulfilment and Invisible Labour

Lily Irani's (2015: 730) observation that Mechanical Turk limits the visibility of its low-paid and insecure workers is instructive. Ubiquitous consumption can never be frictionless, and the hope that it might, or myth that it already is, 'sanitizes the materiality of media and markets' (McGuigan & Manzerolle, 2015: 1845). There will always be some attrition when it comes to moving goods around, something that is too readily overlooked if we over-emphasise the geography of the screen or the weightlessness of a digital economy.

If we are to understand the human cost of buying online, its hidden injury, then we need to understand the way that it configures place as a logistical network. Srnicek (2017: 50) has argued that Amazon is not so much an e-commerce enterprise as it is a logistics company; its main purpose is shifting goods around the globe in the most efficient way possible, collecting data as it goes in order to streamline the process. Amazon does not just make the devices and websites we order from; it does not just own the data centres that sustain the orders we make: Amazon also owns the distribution and order fulfilment infrastructure that delivers our purchases, as well as all the data generated by our orders and their delivery (Greenfield, 2017: 279). By venturing into warehousing and

freighting, Amazon has not diversified away from its origins as an online retailer; instead, it has perfected its mission, vertically integrating the full means of communication (see Morley 2011). Bratton (2015: 131-133) argues that Amazon's success rests on its logistical expertise, which in turn is sustained by its ability to utilise its data wealth to compress supply and retail distribution chains.

Business logistics is, at heart, an attempt at the successful management of capitalism in motion. Amazon's compression ought to be understood as a form of *lean logistics*, which involves incorporating the whole supply chain – ordering, production, distribution, warehousing – under a single managerial regime (Bonacich & Wilson, 2008). It has its origins in the production methods first popularised by the car industry, including just-in-time inventory control and an emphasis on pull rather than push production, a mode of organising production and distribution that has grown to become a more general, and wildly successful, operating philosophy (see Wright & Lund, 2006). This is a philosophy that aims towards a very simple resolution: operational efficiency. Distribution was long seen as a 'necessary evil', a bridge between production and consumption where no value could be added (Newsome 2010: 191). Lean logistics sought to minimise inventory build-up to prevent over-production by manufacturers and over-stocking by retailers. In turn, logistical spaces became fruitful sites for adding value to the supply chain.

There are two broad consequences of this. The first is that the logistics industry became subject to increasing centralisation and automation, with a simultaneous concentration of distribution into fewer centres and shrinking of the workforce (Newsome, 2010: 194; Wright & Lund, 2006: 62). The second consequence was a rise in retailer power. A move from push to pull ordering means that suppliers and distributors are forced to respond to retailer demand. This means that power within the supply chain shifts from the capacity of producers to the demands of consumption (Wright & Lund, 2006: 61). Retailers can now exert pressure on logistics companies, setting performance indicators and demanding speedier and more efficient supply. The lean philosophy solidified into regimes of control that exert themselves forcefully onto the working conditions of those who labour within logistical space. The result is low pay, deskilling, and the intensification of already monotonous work increasingly carried out by temporary workers. To keep goods in perpetual motion, any impediment to the extraction of effort must be removed. This calls for the imposition of ‘engineered standards’ – labour management systems that are designed to intensify work (Wright & Lund, 2006: 64) – as well as key performance indicators, time and motion studies, and other tools of surveillance and control that eradicate discretionary effort (Newsome, Thompson & Commander, 2013: 2). This enforcement of obligatory effort chips away at worker autonomy, intensifies stress and illness while it increases workload, and attacks the

solidarity of the workforce as they are forced to compete against one another to meet targets.

As a key logistical site, the warehouse has been especially susceptible to the negative impact of lean logic. Warehousing had traditionally been located within the industrial sector, benefitting from collective bargaining over work conditions and pay, but this began to shift in the 1980s when, at the same time that the value-adding function of the warehouse as a profit centre was realised, it was recast as a part of the service economy under the power of retailers, bringing with it the lower pay and increased insecurity shared by shop workers, food servers and the like (Mulholland & Stewart, 2013: 537). Work conditions were further depleted by the sorts of performance and productivity indicators that could easily be applied to the highly routinised work that took place in warehouses (Moore & Piwek, 2017: 312). These were vital in implementing the perpetual motion model of ‘cross-docking’, where goods would come into the warehouse and then be loaded for immediate distribution (Wright & Lund, 2006: 62), transforming the warehouse from a place of temporary inventory storage to a hub of motion where stock seldom stands still. The constant mobility of goods is sustained by hourly pick rates that are, in essence, decided by the consumer and enforced by the retailer, rather than by what is actually feasible or safe. As such, the work is not only relentless and monotonous, but physically deleterious, with constant lifting, bending and

stretching leading to weight loss, exhaustion and injury (Mulholland & Stewart, 2013: 552). The speed required of workers, the intensification of the temporality of loading and unloading, and the strict enforcement of unrealistic rates, leads to reckless working. As a foreman in Kirsty Newsome's study of warehousing acknowledged: 'there's a corner to be cut everywhere if you're willing to put half your workforce in hospital' (2010: 200). This physical degradation is matched by the attack on self-esteem that comes from working in a low-trust regime. Traditional Taylorist methods of monitoring have been supplemented with an array of sensors and trackers that generate data on workers' movements, log periods of sedentariness and set levels of effort tailored to the individual employee (Moore & Piwek, 2017: 308). Wearable devices are used in warehouses not only to monitor worker activity, but also to allocate required work and to set the unsustainable pace that facilitates the perpetual motion of goods. Perhaps it is no surprise that the warehouse is widely seen as 'an employer of last resort' (Mulholland & Stewart, 2013: 536).

The warehouse has become, in the nomenclature of Amazon, the *fulfilment centre*, which at least hints at the way that consumerist desire is leading supply chains by the nose. Amazon's power over its suppliers and distributors is a result of its platform scale, allowing for what Bratton (2015: 331) calls 'supply chain omniscience'. Amazon's total integration of informatics and logistics 'allows them a line-of-sight into the supply

chains that is so comprehensive ... that they can set wholesale prices (and wages) at skin-thin margins because they know more about their suppliers' bottom-line costs than their suppliers do' (Bratton, 2015: 330). Pay and conditions in Amazon's fulfilment centres reflect those elsewhere in the warehousing industry. Workers are often on fixed, short-term contracts, hired via an outsourcing agency, with no benefits or raises, or even opportunity for advancement or permanency (Greenfield, 2017: 195). Recently, there has been a shift from sub-contracting back to direct hire, as the demands of e-commerce – picking individual items for home delivery rather than cases to transport to retailers – has increased the number of pickers required, albeit with no less insecurity or disposability (Loewen, 2018). An undercover report into UK fulfilment centres in the *Mirror* in 2017 revealed a picking rate of 120 items per hour – one every 30 seconds – for an individual employee, at a rate of 7p per item, and working weeks of up to 55 hours (Selby, 2017). By the time the *Guardian* did a similar exposé a year later, the rate had increased to 250 items an hour, with shifts of up to ten and a half hours, for remuneration of about £18,000 a year (Ferguson, 2018).

In Germany, fulfilment centre workers are bussed in by Amazon (but fined if those buses are late), and retained on temporary contracts that offer few rights, permit pay docking at will, and that motivate workers to accept dangerous working conditions for fear of being let go (Fuchs, 2014: 2-3). In Scotland, they have resorted to sleeping in

tents close to the fulfilment centres in order to save money (Kentish, 2016), and in the United States, many of the workers have become reliant on food aid to supplement their pay (Schiller, 2018). Workers can walk around 11 miles per shift (Dyer-Witthford, 2015: 172), are forced to stand when they are not walking (Butler, 2018), and have been observed asleep on their feet (Selby, 2017). The man from the *Mirror* reported increased blood pressure and a higher resting heart rate during his time working undercover in a fulfilment centre (Selby, 2017), and many workers report suffering physical pain from the exertion of picking and packing (Butler, 2018). In 2018, Amazon fulfilment centres were named as one of the most dangerous places to work in the US for avoidable workplace injuries (Sainato, 2018). Workers have said that they fear being punished if they miss work due to injury or illness (Boyd, 2018), which might explain the incidences of ambulances being called to the fulfilment centres to assist collapsed workers (Butler, 2018). And they report that it is difficult to take toilet breaks, which are timed in the interests of productivity, with toilets being as far away as a third of a mile by foot (Selby, 2017), to the extent that workers have taken to pissing in bottles or going without water in order to avoid being disciplined (Boyd, 2018). Fulfilment centres are ‘passing out hot’ in the summer – not ideal if you are going nil by mouth – as they are kept sealed to prevent pilfering (Greenfield, 2017: 47). These are low trust regimes that employ a number of monitoring processes against their workforces. Workers undergo mandatory security screenings when they leave the centres, without

any payment for the time taken from them (Scholz, 2017: 25). They are also subjected to performance metrics, monitored through every minute of their zero hours contracts (Moore & Robinson, 2016: 2779), with wearables used to ensure productivity is kept up, even at the risk of burnout or breakdown (Moore & Piwek, 2017: 311). Back in Germany, Christian Fuchs (2014, pp. 2-3) describes security guards patrolling the facilities dressed like a paramilitary force, whilst in Wales the centres have been compared to forced labour camps (Moore & Robinson, 2016: 2780). Greenfield (2017: 195) concludes that these fulfilment centres 'are places that no one sane would choose to be if they had any other option at all'.

Then there are the drivers who take the goods in and out of the warehouses. Trucking, like warehousing, has been a casualty of the increased power of retailers, who have driven down distribution costs and created a race to the bottom, characterised by weakened unions, low pay and impaired working conditions (Bonacich & Wilson, 2008). The situation has become so poor that Michael Belzer (2006), reflecting on the impact of deregulation in the sector, has described logistics vehicles as 'sweatshops on wheels'. Given the price of fuel and considering that fuel costs can amount to as much as 40% of all operating costs for the distributor, slow and steady driving is essential for efficiency savings (Gregson, 2017: 347). This is handy, as it has been reported that drivers have been fined for delivering their loads early to Amazon fulfilment centres

(Selby, 2017). It may feel counterintuitive, but seen through the lens of lean logic, where the immobility of goods is an egregious inefficiency, early deliveries are sunk costs. But despite its status as a strategic site for cost saving, the trucking industry is not without rigorous regulation. In the UK, drivers face a four-and-a-half hour limit before they have to take a 45 minute break, and can drive for no more than nine hours in any 24 hour period (this can be extended to ten hours but no more than twice a week); they must take eleven hours continuous rest between work days; and have a fortnightly limit of ninety hours, and no more than 56 hours in any single week (see Gregson, 2017: 348). Compliance is measured by tachograph, Radio Frequency Identification and GPS, technologies that the drivers regard as ‘the office spy in the cab’ (Gregson, 2017: 348). There are no exceptions to these rules; if you hit your limit, you must pull over, no matter how close you are to delivering your goods. Lorry drivers, then, at least operate under some regulation of time, but for the van drivers, who take the goods to their final fulfilment, delivering them to our front doors, things are less clear.

Amazon contracts out its doorstep delivery to companies that regard their drivers as independent contractors, avoiding payroll taxes, employee benefits, compensation payments and so on, and so keeping supply chain costs down (Dyer-Witthford, 2015: 172-173). They use well known couriers such as DHL, DPD, Hermes, UPS and Yodel, amongst others. Drivers are paid per parcel delivered, face pay deductions for failure to

meet steep targets, and get by on what can amount to below minimum wage. With delivery rates of up to 200 parcels a day, and little enforcement of daily driving limits for vans (eleven hours in the EU), it is no surprise that couriers feel compelled to break speed limits and drive tired (England, 2016), or that they are significantly more likely to be involved in road traffic accidents (Christie & Ward, 2018). Monitoring devices perform the role of the spy in the van, but rather than ensure compliance to safe driving limits, they act to scrutinise the delivery efficiency of the drivers, measured negatively for inadequate haste. Like their counterparts in the warehouses, delivery targets and the threat of penalties force drivers to piss in bottles rather than take sanitary toilet breaks; worse still, some drivers feel so pushed for time that they have taken to shitting in the back of their vans as well (England, 2016). This close association of workers with excrement performs a dehumanising function, further exacerbated by the threat of fines for drivers who need to take sick days, simultaneously rubbing workers' noses in their bodily functions whilst alienating them from bodily autonomy. DPD changed its policy on such fines – £150 a day for missing work due to ill health – when, in 2018, a diabetic driver died after missing appointments with his doctor for fear of disciplinary reprisal (Booth, 2018). The same year also saw a legal challenge to the contractor status of drivers delivering for companies used by Amazon, contending that they ought to be treated as employees, with all the attendant rights and benefits that would bring (Butler

& Smithers, 2018). DPD have even brought in sick pay, as well as paid holiday and access to a pension scheme (Booth, 2018).

However, gains made with big name couriers are precarious, and can be undermined by taking delivery further into the gig economy, where deliveries can be made by anyone with a car and a smartphone. Amazon Flex is a service that matches users with deliveries to be taken on ‘the last mile’ from fulfilment centres to customers’ homes (see Menegus, 2017). Drivers use their own vehicle and pay their own fuel costs. The service is accessed via an app in much the same way that Uber operates, allocating jobs and setting out delivery routes. Amazon undertake screening and background checks but provide little to no training. Work-time is parcelled up into blocks, and no overtime is received if drivers exceed the time allotted for deliveries by the system – even if delays are caused by the poor operation of the system itself. Pay deductions are made for failed deliveries, and users are deactivated and locked out of using the app if their performance – recorded through the same app that sets out the work – is deemed to fall short. Ultimately, Flex allows Amazon to decrease its reliance on the big couriers and take further control of the supply chain, but it also opens delivery driving up to amateurs whose only qualification for the job is a driving license, and who lack the protection of employee status or union representation.

It is striking that at no point during the fulfilment of an order does the customer interact with or even see someone who works for Amazon. The pickers are hidden from sight, sealed away in fulfilment centres without natural light and located somewhere exurban, beyond our daily experience, out there in logistical space. Their labour is rendered invisible: not immaterial, in fact painfully embodied, but nevertheless ethereal to the consumptive process. The delivery drivers who hand over our purchases on the doorstep bear the logos of contracted couriers, or none in the case of Amazon Flex contractors, who have no uniform and are permitted to work in their civvies. They are the only part of the process we encounter, and whether they are dehydrated or constipated or half asleep from punishing hours, they do not have the name *Amazon* emblazoned on them. Their hardship is subtly disassociated from Amazon as a company. And this disassociation can be furthered by removing the encounter altogether. Amazon Locker allows customers to have their purchases delivered to a secure box, located somewhere public like a shopping centre or a newsagent, to be collected at their leisure. Amazon Key is a device fitted to the customer's front door that allows delivery drivers to let themselves in and drop off the goods unnoticed. And if that seems altogether too intimate, Amazon Prime customers can set their car as a shipping address and have couriers place parcels directly in the boot using a digital access code.

Ultimately, the direction of travel is towards removing the human altogether. Fulfilment centre employees are already worked like robots, even if they cannot keep up with the carefully orchestrated cybernetic ballet of the logistical order. Back in 2014, it was announced that Amazon would fill its warehouses with blue collar robots, buying Kiva Systems and investing in Rethink Robotics to equip them for the eventual automation (Dyer-Witheford, 2015: 172; Stiegler, 2016: 59). It is also developing autonomous trucking and drone delivery (Greenfield, 2017: 278). We have this disenchantment of interaction to look forward to; in the meantime, whilst human workers are retained, the overwhelming experience is one of mystification. Logistical spaces are cast as ‘latent worlds’ (Thrift, 2008: 19), an unremarkable and under-scrutinised geography that is difficult to question – if it poses any questions at all – despite its prominence in our consumer society. This is hidden injury. The workers that inhabit these spaces fade away amidst the disorienting speed and managed obscurity of ubiquitous and instantaneous consumption.

Moral Injury: Platform Capitalism and the Pollution of Responsibility

The ‘myth of immaterial media’ (Cubitt, 2017: 13) in e-commerce is sustained by the material hardship of invisible labour that is further removed from our cognisance by an unconscious mode of consumption encouraged by ubiquitous platforms. Unremarkable

and everyday activities become wrapped up in the business ontology of *the digital economy*, until the act of buying products takes on its high-tech sheen and the experience, rather than the fulfilment, of consumption is dematerialized. Supply chains and labour conditions are obscured, becoming part of the unconscious of consumer society. The goods arrive without any explicit departure, no story to tell of their time spent in trucks and warehouses and vans, or of the people with whom they shared these logistical spaces. They lack exteriority. This production/consumption dualism is unsustainable; as Robert Sack (1992: 103-104) observes, ‘the very act of consuming mass-produced products then makes us agents of production by perpetuating places and processes of production, distribution, pollution, depletion and destruction’.

A focus on warehousing and delivery does not give a full history of the products bought online. Before they reach the fulfilment centres, most products will already have taken a journey by air or, much more commonly, by sea. Amazon Air is an integrated cargo airline used for the former, and Amazon has recently – perhaps belatedly – entered the sea freight sector with Shipping With Amazon. These extensions of logistical space will present their own material hardship. And before we can make an order, we need a device – tablet or smartphone, Echo or Dash – built somewhere else under often harmful conditions. Tech companies exert their power over factories in much the same way that retailers do with logistics provision, remotely setting time-to-market regardless

of safe capacity for production, posing a risk to the health and safety of factory workers (Chan, Pun & Selden, 2013: 102). In 2018 it was reported that workers making Amazon's Echo speakers and Kindle e-readers at a Foxconn factory in China were hired and paid illegally, and then treated as disposable hostages to the capriciousness of demand (Chamberlain, 2018). Elsewhere at Foxconn, workers have been tasked with eliminating tiny defects in the cases of smartphones under pressure from tech companies acting on the behalf of picky customers, forced to spot scratches little more than a couple of hundredths of a millimetre, causing headaches and eyestrain (Chan, Pun & Selden, 2013: 110). Just keeping these things shiny for the consumer causes health problems, as dust particles from polishing the devices can lead to respiratory disease (Parikka, 2015: 89).

In an older currency, the word *consumption* is used to refer to a wasting disease, most commonly pulmonary tuberculosis, which attacks the lungs and causes extreme weight loss and fatigue. Jussi Parikka observes that tuberculosis disintegrates and dematerialises; it 'releases the body from matter' (2015: 86). Buying online causes a kind of pollution of perception, an industrial bi-product of platform ubiquity and the imposition of speed and efficiency in the supply chain, that leads to *moral consumption*, or the wasting away of our moral awareness. A symptom of this is the disintegration of responsibility. The rhythms that shape logistical space, and draw the customer into

unthinking complicity, exceed human perception. Beyond the geography of the screen and that of the doorstep, buying online has been rendered insensible. We have lost contact with the spaces of labour and the workers that toil in them. Contact is essential to the moral relationship set out in the work of Emmanuel Levinas (2007; 2008). For Levinas, our sensory experience of others is more akin to touch than to the processing of information. The other intimately caresses the eye, the ear, the skin. To touch is to experience a fundamental encounter with exteriority. The 'I' is opened up to, directed towards, that which lies outside of itself, beyond its own sensory interest and everyday concern; we turn towards the other, and, recognising that they lie beyond our comprehension, that they cannot be reduced to a possession of our thought, we assume responsibility – in case we harm what we face yet can never quite fully grasp. But platform capitalism pollutes the senses and denies exteriority. This is moral injury. Platform workers are largely lost in the smog of speed and efficiency, or what Virilio (1998) calls *grey ecology*: the degradation of the social environment caused by the reconfiguration of space and time by digital technology. The more technologically connected we are, the more complicit we become with platforms that brutally and deleteriously exploit the supply chain, while our awareness of the process wastes away.

The above covers only a small part of a globally connected story. We could go further down the supply chain and look at the appalling conditions endured by the miners who

pull minerals like coltan or lithium out of the earth to make vital components for our digital devices; or at the environmental costs of the air pollution generated by freighting and distribution, or by the energy costs of maintaining the whole consumptive apparatus. These are essential considerations if we are to fully understand the moral implications of buying online – and digital technology in general (see for example Cubitt, 2017; Fuchs, 2014; Parikka, 2015) – and provide just some potential areas of further application for the typology set out above. In the first section it was argued that digital platforms inflict a *cognitive injury* on users by concealing their operation from awareness. This is seen most starkly in online retail through the unconscious consumption enacted by the speed of purchasing and delivery. In the second section it was argued that digital platforms are sustained by the *hidden injury* of invisible labour. This was explored through the harmful and precarious labour undertaken by the logistics workers who fulfil orders. In conclusion, digital platforms create a kind of *moral injury*, the pollution of the perceptual field in a way that causes awareness and responsibility to waste away, like a tubercular disease. This is the real dematerialization, the proper weightlessness of our technologically connected consumer society: that of a moral burden dissipated and lifted. Overall, the cognitive injury of unconscious consumption makes it easier for the hidden injury perpetrated in logistical spaces to remain hidden, and both injuries combine in ways that are injurious to moral community – to the ability of the ‘I’ and the ‘Other’ to form a ‘We’.

Only by recognising that platform capitalism is, at heart, supply chain capitalism, and scrutinising the logistical spaces it creates, can we begin to bear responsibility for the suffering that sustains it. All the data that platforms soak up situates each of us within a logistical network that reaches far beyond our doorstep. Logistics does not end with us; we are not the terminus of its process, even if we feel that our consumptive desires have been fulfilled. Instead, we are each just another moving piece within a logistical environment governed by platforms and fuelled by data. And what matters most is how that dynamic shapes our movements. Platform capitalism privileges the trajectories of commodities and of data. And yet, for Virilio (1999: 81), ‘trajectory’ more vitally ‘means going towards the other’. What is most injurious about this interplay of cognitive and hidden injury is that it interrupts our orientation towards the other.

Metric power enacts a logistical society. And it is far from certain that moral responsibility can thrive under these conditions. The question is not only what are we missing (hidden injury) but how do we miss it (cognitive injury) and what does it cost us (moral injury)? If we can apply this more widely to the digital platforms that organise our worlds, more deeply down our supply chains and through our logistical networks, then we might begin to work out what we ought to do about it.

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