Infrastructural Decay: Artists Exploring the Social and Political Relationships of Maintenance and Repair.

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Abstract

With the ongoing spread of Coronavirus, societies around the world have become aware of how inextricably linked we all are to the infrastructures that distribute the resources for everyday life.

While infrastructures promise modernity and growth, their neglect and absence expose inequality and the fragility of progress. Continual maintenance and repair keep infrastructures functioning. Infrastructure systems are often hidden beneath the surface of urban life, only becoming apparent when their breakdown occurs. I propose presenting a brief overview of artists exploring how the often neglected and undervalued activities of maintenance and repair are shaped by race, gender, class, and other political, economic and cultural forces.

Introduction

It seems a global pandemic has helped society to understand how inextricably linked we all are to the infrastructures that distribute the resources for everyday life.

> Infrastructures are built networks that circulate the flow of goods, people and ideas. They bridge distance using roads, railways, wires and pipes. Connecting one point to another, mediating exchange over distance and forming the base on which modern economic and social systems operate. Contemporary Capitalism operates in these infrastructures (Larkin, 2013, p. 328).

Infrastructural Maintenance

By conceptualising ruination not as something which attacks infrastructure after its lifetime, but as something that is endemic to infrastructure in the form of physical decay in the materials used to build it. “From the moment that construction is ‘complete,’ ruination starts operating. What keeps infrastructure functioning, then, is the continuous work of maintenance” (Anand, Gupta and Appel, 2018, p. 76).

To keep modern cities from collapsing we must consider the processes of maintenance and repair, including the normally unseen labour that goes into making Infrastructure often seem hidden beneath the surface of urban life and largely ignored.

Artists

By selecting artists for this article, with the criteria that their practice aims to bring infrastructure, maintenance, and repair to the foreground, I hope to emphasise how art, politics and everyday life are interconnected.

The philosopher, Jacques Rancière's understanding of the function of aesthetics in the formation of political subjects offers a way into thinking about the significance of infrastructures:

> If art shares with politics the power to constitute new collective worlds, Rancière argues that this occurs through the process of poiesis and aisthesis, these are the domains that are, for me, of the most interest for the study of infrastructures. Poiesis, in this context, refers to the process of doing and making, the techniques whereby a broad range of things are brought into sensible existence. Aisthesis is the sensory apprehension of those things and the world they create. For Rancière, the politics of aesthetics is the role that art plays in making visible the distribution of sensible order and offering a critical alternative to it (Anand, Gupta and Appel, 2018, p. 187).

'Poiesis' means making, thus the making of Infrastructures embody the complex relations and networks that form contemporary society. They are inseparable from our everyday lives; we are dependent on them for the essentials of living from the heating and lighting of our homes to food supply and travel. Yet, we rarely think about or notice them until they do not perform as expected or breakdown. Whilst infrastructures promise modernity and growth, their neglect and deficiency expose the fragility and inequality of progress.

This tension between aspiration and failure is explored in my summary of artists that draw attention to the often neglected and undervalued activities of maintenance and repair. This overview is intended to show how artists can make visible the actual workings of how we live and the consequences of our sociotechnical lives. How issues from ship dismantling to internet content moderators lead to social inequalities and unjust labour practices, linked by the

political, cultural and ecological contexts of technology. As technological acceleration has changed society, technology has become more concealed, leaving society unable to map the interconnections of the technological systems it has built.

Artists considered are: Mierle Laderman Ukeles who wrote the ‘Manifesto for Maintenance Art’, emphasizing the differential value and inequality of maintenance labour; Edward Burtynsky’s photo series ‘Ship Breaking’ documents the ship dismantling industry in Bangladesh, giving an example of what happens to infrastructure at the end if its life, usually hidden from societies in rich and developed countries. In the documentary by German film makers Hans Block and Moritz Rieswiek ‘The Cleaners’, the world of content moderators in the Philippines is uncovered. Workers who screen sites such as Facebook and YouTube for illegal or inappropriate content, offer another example of an industry that is veiled and shipped out to the global south. The artist, Trevor Paglen, explores the hidden materiality of digital infrastructure. Work designed by Guy Keulemans and Martijn Dijkhuizen titled 'Smash-Repair’ investigates the space between breakdown and repair looked at through the lens of Heidegger’s notion of the world as ‘ready-to-hand’. Lastly, in view of infrastructures dependence on fossil fuels and therefore humans geological and ecological impact, artist Nina Katchadourian draws attention to the ways we share earth with other species. Her series "Mended Spider Webs" involves her making careful repairs to spiderwebs.

Embedded Values

The first chapter of Caroline Criado Perez’s book, *Invisible Women: Exposing Data Bias in a World Designed for Men*, explains how a gender equality initiative team in Sweden explored whether clearing snow from the local transport infrastructure could be sexist. They concluded that the snow clearing schedule benefitted men. Snow was always cleared first on the main roads, however, 79% of pedestrian injuries occurred in winter, of which 69% were women. Pedestrians are injured three times more often than motorists in winter conditions, the estimated hospital cost was £3million each winter. By prioritising clearing paths first, benefiting pedestrians and public transport users, the accident rate was halved, and the local government saved money. The men that designed the schedule were not purposefully discriminating against women but were oblivious to the possibility that their routines and requirements could differ. Something as innocent as snow clearing shows how deeply embedded values, biases, and mindsets guide daily interactions and views of the world, such as valuing paid employment

over unpaid care work and working in office jobs over frontline service-sector and domestic workers (Criado Perez, 2020).

Mierle Laderman Ukeles

Mierle Laderman Ukeles considered these themes when she pioneered the genre of 'maintenance art' in the late 1960's. Ukeles's early work deals with feminist questions of the domestic economy and the unacknowledged service tasks performed by women. Her focus then shifts to include the broader service economy and her later work concentrates on the sanitation infrastructure of New York. A usually invisible sector of the service economy which brings attention to an essential fact of technology - that it needs maintenance and care (Feldman, 2008).

Ukeles wrote her maintenance manifesto in October 1969. It contains my favourite line regarding the politics of infrastructure 'The sour ball of every revolution: after the revolution, who's going to put the trash out on a Monday morning'. As an artist, a housewife and a mother, Ukeles used her manifesto to oppose her social standing within a patriarchal system. By changing 'domestic work' to 'maintenance work' and again with maintenance work' to 'maintenance art' she engages a shift of capitalist hierarchies to counter the stratification of her labour value (Petrossiants, 2018)

Ukeles' work examines the relationship between maintenance and infrastructure. In the 1976 Ukeles was invited to exhibit at the Whitney Museum, which at the time was housed in the lobby of a skyscraper. This gave Ukeles the opportunity to change the scope of her analysis from the "social reproduction" of the individual to the reproduction of a larger post-Fordist system of labour found in a vast corporate building. The result was a durational and participatory performance work called 'I Make Maintenance Art One Hour Every Day' (fig1), which made visible the work undertaken by a rarely respected, often hidden and yet essential labour of the building's three hundred maintenance workers. Ukeles wrote to these workers inviting them to make a work of art with her. She approached the maintenance workers with a Polaroid camera, operating in eight hour shifts alongside them, and took a photo asking them if the image showed them working or making art. The subsequent photo was captioned and appropriately added to the gallery wall. A grid of photographs emerged as a collaborative portrait of the building's otherwise unseen workforce. By foregrounding the maintenance activities of the building's workers, Ukeles broke down barriers for these employees.

Employees who had previously not felt welcome at the gallery soon began frequenting the space to see themselves and their co-workers on view (Petrossiants, 2018).

Fig 1. 'I make art one hour every day', Mierle Laderman Ukeles, 1976, 720 collaged dye diffusion transfer prints with self-adhesive labels, graphite pencil, collaged acrylic on board, and self-adhesive vinyl on paper.

Ukeles' later sanitation projects begin to investigate the interconnectedness of the urban and the ecological, notably the role that maintenance labour plays in sustaining a city. In 1977 Ukeles was invited by the New York City Department of Sanitation to be the unsalaried official artist in residence. The first project 'Touch Sanitation Performance' (1979-80) took an anthropological approach, as Ukeles visited sanitation facilities and accompanied bin men on their routes. Her discussions revealed accounts which informed many demeaning and detrimental perceptions. Some workers described how they suffered a barrage of insults when working, others recounted how fears of condemnation had resulted in efforts to hide their profession from neighbours. The performance consisted of several interrelated pieces, as Ukeles sought to redress this disconnection. In 'Handshake Ritual', she set out to shake hands with all of the over 8,000 sanitation workers. In this piece she faced each sanitation worker and said, "Thank you for keeping our city alive". This project offered the space for these workers to voice their individual narratives (Rugg and Hinchcliffe, 2002).

Forty-two years later, ‘Touch Sanitation Performance’ seems like a dystopian reality - shaking hands is illicit and good hand hygiene is a civic duty.

Fig 2 ‘The Social Mirror’, Mierle Laderman Ukeles ,1983; garbage collection truck, tempered glass mirror, and acrylic mirror.

Ukeles suggests that the sanitation system, fully and properly understood, reveals ecological connections between people and place. This is demonstrated in ‘The Social Mirror’(fig.2), a specially commissioned mirror clad dustbin lorry that travelled around New York City, potentially mirroring everyone and providing an image of inclusiveness, showing how urban society is linked to the sanitation system, reflected in its sides. Its ubiquity insists upon the consumers’ implication in the work of sanitation. Ukeles’s artwork regarding sanitation lets us see the city as a complex, interrelated and dynamic living system. It also encourages a view of the city as embedded within a larger economy, calling attention to uneven divisions in labour and wealth. Her sanitation projects seek to grant dignity in a typical undervalued sector of the economic labour market (Feldman, 2008).

Trever Paglen

Mierle Ladderman Ukeles has shown how infrastructure systems are often hidden beneath the surface of urban life, only becoming apparent when their breakdown and absence draw attention to the networks that circulate the flow of goods, people and ideas. Fig 3 shows a smart phone, running a commercially available augmented reality App, that provides its user with a composite view of hidden infrastructure data.

Fig 3. Augmented reality App brings hidden infrastructure data to the surface. (www.environmentalengineering.org.uk/wp-content/uploads/2020/05/Augmented-reality-brings-hidden-infrastructure-data-to-the-surface.jpg)

There is a misleading gap between the promise and the reality of digital systems. Metaphors that suggest a dematerialised structure such as ‘virtual’, ‘cyberspace’ and the ‘cloud’ do not hold up when considering most interactions we have with technology; from opening an app to searching the web involves a device doing something physical, whether in our hand or in some distant air-conditioned server warehouse. A 2013 report ‘The Cloud Begins with Coal. Big Data, Big Networks, Big Infrastructure, and Big Power’ calculates: ‘The average square foot of a data centre uses one hundred to two hundred times more electricity than does a square foot of a modern office building, put another way, a small few thousand square foot data room uses more electricity than lighting up a one hundred thousand square foot shopping mall’.

Fig 4. Trevor Paglen, NSA-Tapped Fiber Optic Cable Landing Site, Mastic Beach, New York, United States, 2015.

Artist Trevor Paglen explores the hidden materiality of the digital world through photography, sculpture and social practice. In his series 'Landing Points' Paglen learnt how to scuba dive so he could photograph fibre optic cables at the bottom of the ocean which connect continents allowing information to flow through the internet. When these cables surface, they join to a vast interlinked network of warehouses holding masses of data banks hidden on the outskirts of major cites consuming huge amounts of energy to function. However, these cables are not evenly distributed around the world. Off the coast of West Africa, a cable connects Ghana and Nigeria but only to the UK, the former colonial power, whilst cables connect Senegal only to France, the former colonial power. With more than 20 cables connecting the US to Europe, the first direct connection from Africa across the Atlantic only opened in 2018. That's a legacy of European imperial power that lives on in today's digital infrastructure (Bridle, 2018).

We connect to the cloud; we store and retrieve data from it, and we pay to use it without really understanding what it is or how it works. Brian Carroll (2001)concentrates on the cloud's physical construction in his essay 'Seeing Cyberspace: The Electrical Infrastructure is Architecture' when he writes

> …the computer tool is housed in an electrical building connected to the electrical power system. Together this infrastructure materially represents and sustains the *trompe l'oeil* of otherworldly immateriality whilst simultaneously depending on a physical assemblage of wires, plugs, and sockets to distribution lines and poles, transformers, transmission towers, and electrical power plants. Without these

extensions, cyberspace would not exist…Cyberspace ceases to exist without electricity.(p. 3).

Guy Keulemans and Martijn Dijkhuizen

In their essay Stephen Graham and Nigel Thrift (2007) call on Heidegger's notion of 'Tool-Being', built around the central distinction between tools that are 'Ready-To-Hand' versus 'Present-To-Hand'. Looking at an object as if it was 'Present-to-Hand' would be a theoretical approach, an object that is to be considered or studied. I can contemplate an object, for example, a hammer - its size, its use, its qualities. However, when I use the hammer, it becomes something different; I do not contemplate the philosophical or theoretical properties of a hammer every time I use it.

Martin Heidegger wrote at length about hammers. He contrasted a working hammer that was 'Ready-To-Hand' to a broken hammer that was 'Present-To-Hand'. The working hammer recedes to the background of its utility, but the broken hammer, being useless is merely present in pieces. When technology is 'Ready-To-Hand' it functions as predicted and thus stays below the level of conscious reflection. When 'Present-To-Hand', the material world resists, obstructs and calls attention to itself. Somewhere between the visible (broken) tool and the concealed tool is where repair and maintenance become significant. Without that capacity, the world cannot go on, cannot become 'Ready-To-Hand' again (Graham and Thrift, 2007).

Fig 5, 'Smash Repair' by Guy Keulemans and Martijn Dijkhuizen, 2009.

Fig 6, 'Smash Repair' by Guy Keulemans and Martijn Dijkhuizen, 2009.

The work ‘Smash Repair’ (fig 5) designed by Guy Keulmans and Martijn Dijkhuizen, sits somewhere between failure and repair. The structure can be smashed repeatedly yet retains the capability to be repaired. As an investigation into the aesthetics of repair, the structure is built up using a generative system of collapse and rebuild. In each cycle of repair, tiles are added, increasing structural strength where it is needed at the fracture lines. Its shape starts to grow and develop becoming increasingly stronger over time (fig 6). This process creates an evolutionary development whereby the strongest structure is created using the least amount of material. The same method occurs in nature, for example, an established tree will only ever grow to create further structural integrity as opposed to random growth.

Edward Burtynsky

By foregrounding maintenance and care as an aspect of technology it allows us to view technology as an object that is not just digital and new, and as a process that is not merely innovation. Simply defined, technology includes all the things humans use to help them reach their goals, tools such as cutlery. Since technology is not just innovation, and the tools we use daily, other than our phones and laptops, are mostly old, we can consider not only ‘what technology is’ but also ‘when’ technology is. A piece of technology passes through three basic phases: Innovation, maintenance and decay. (Vinsel and Russell, 2020)

Fig 7, ‘Ship Breaking #4’ Edward Burtynsky’s photo series ‘Ship Breaking’

Edward Burtynsky’s photo series ‘Ship Breaking’ documents the ship dismantling industry in Bangladesh (fig 7). The photos highlight the decay, a moment of technological life that goes mostly unseen. On the one hand these activities are routine, a normal and inevitable feature. However, phases of technological life are unbalanced, innovation being the dominant phase, with its cultural prominence and economic value, whilst repair comes later in the process and its worth is less. This is an untrue representation of how scopes of technology work. The value of innovation is limited and only continued by repair (Graham and Thrift, 2007).

Conversely, we now live in a society of mass production and consequently we have become a culture of disposability. Many commodities are actually made to be replaced, disposed of, or even deliberately designed to have repair restrictions. In 2012, the latest MacBook Pro released by Apple was reviewed for Wired magazine as “the least repairable laptop we’ve ever taken apart”. The review was written by Kyle Wien a leading figure in the right-to-repair movement that emerged to contest these repair restrictions. Wiens is the chief editor and CEO of online repair guide website iFixit, a company with the goal to “teach everybody how to fix

everything". Small businesses, consumers and environmental sustainability are all negatively impacted by repair restrictions. E-waste is the world's fastest growing waste stream and much of it is handled unsafely as it flows "downhill on an economic path of least resistance, from the major cities of the global North to the processing spaces of Asia, Africa and Latin America" (Shabi, 2002)

As reflected in Burtynsky's series, there is a lot of value in the large amounts of steel salvaged from the dismantled ships, but they also contain large amounts of hazardous materials, such as asbestos and heavy metals "Because we don't see it, it is easy to forget that the forms of breakdown and repair practiced on the beaches of Bangladesh come at the end of a complex and consequential distribution, with deep and troubled ties to global economic flows and structures". (Jackson, 2014, p. 225)

Hans Block and Moritz Rieswiek

The documentary by German film makers Hans Block and Moritz Rieswiek 'The Cleaners' highlights another example of industry that is shipped out to the global south. This time by companies such as google, twitter and Facebook that pay third party companies based in Manila to do their dirty work. Just like buildings, most software applications and platforms would breakdown quickly were it not for maintenance, carried out by content moderators who screen sites for illegal or inappropriate content, which is almost always done in secret, for low wages, by low status workers who must review, day in day out, digital content that maybe pornographic, violent, disturbing or disgusting.

The documentary introduces us to a small number of these hidden anonymous office workers. We learn that some moderators have targets of deleting 25,000 posts a day from thousands of images identified as questionable. The mental strain that this kind of work causes soon becomes apparent when we learn that one moderator, who specialised in judging live videos of self-harming, killed himself after being refused a transfer three times.

Nina Katchadourian

In the essay 'Infrastructure, Potential Energy, Revolution' Dominic Boyer suggests that infrastructure in some way indexes the politics of the contemporary. Keynesian economics, the dominant western theory from the mid 1930's through to the 1970's, required massive

governmental investment in large scale public infrastructure projects as a means of job creation and economic stimulus. In recent decades, with neoliberalism, we have moved to a market economy and steadily to a market society. As Boyer writes, “thirty years of privatisation, financialisaton and globalisation later, this legacy of ‘public infrastructure’ has become rather threadbare, capturing a general sense of evaporating futurity in the medium of corroded pipes and broken concrete” (cited in Anand, Gupta and Appel, 2018).

Boyer points out that this is taking place under the shadow of the Anthropocene. This is an era intimately bound to fossil fuels, with infrastructural networks so completely linked to the consumption of fossil fuels, from airline travel, coal fired power plants, nuclear power plants and the global oil network. Boyer’s assessment is that “All the happy biopolitical promises, whether neoliberal or Keynesian, of endless growth, wealth, health, and productive control over “nature” now appear increasingly deluded and bankrupt” (cited in Anand, Gupta and Appel, 2018, p. 226).

Fig8. ‘Laundry Line’ Nina Katchadourian, C-print, 20 x 30 inches, 1998

An image from the ‘Mended Spiderweb’ series.

To de-centre humans is in part to think about other things that shape life on our planet. Nuclear waste will probably pollute the earth long after humans are extinct.

In view of humans' geological and ecological impact, artist Nina Katchadourian draws attention to the ways we share earth with other species. During a six-week residency in a forest in Finland, artist Nina Katchadourian began fixing broken spiderwebs. 'Laundry Line' (fig.8) shows an image from the 'Mended Spiderweb' series. Using tweezers and glue, Katchadourian made repairs by introducing bright red thread into the webs. The morning after Katchadourian made her first repair, she found her threads laying on the ground and realised that the spider had removed them over night and made its own repairs. As the series continued the repairs were always rejected by the spider and discarded even when the webs seemed abandoned.

Conclusion

Jacques Rancière's account of how new political and social identities can arrive demonstrates how the voices of the once suppressed and marginalised can become heard and recognised by the dominant social order. By taking the notion that critical art has the capacity to produce a new perception of the world, therefore creating a commitment to its transformation, the central point of this paper is trying to show that repair and maintenance are not minor activities but are in fact the engine room of modern economies and societies.

The selected artists aesthetically all work with the broken, from Katchadourian's spiderwebs to Guy Keulmans and Martijn Dijkhuizen's ruined structures. Amid deepening ecological and sustainability problems in the world, these artists show how, by altering the nature of tool-being and changing mindsets, products could be designed so that they are easily maintained, repaired and upgraded. In the same context, waste will always have to be dealt with. Shipping waste out of sight to the developing world will not solve any problems. As Covid-19 has shown by exposing choke points within global supply chain, we are all connected. As is the case in Hans Block and Moritz Rieswiek's documentary, with content moderators living in a country with a religious demography that is 94% Christian, decisions that are being made are being made by employees with their own cultural biases. That each choice comes down to a single person making a judgment, often 7,000 miles away from where the item was first posted, their two second decision to ignore or delete has consequences that ripple across the internet. In Steven Jackson's (2014) essay 'Rethinking Repair' he writes of Burtynsky's photo series that "some countries are more on the receiving end of globalization than others" (p. 225).

In Ranciérres' 'ethical regime of art' , artistic images are evaluated in terms of their utility to society, meaning that artists' work cannot be granted too much power or acclaim because the laborer performing the 'artistic task' of emulating reality operates according to the same criteria as someone making a bucket, and in this aristocratic way of thinking, common labourers have no voice within society. This is perfectly reflected in Mierle Ladderman Ukeles' 1973 work where she subverts structuralism within labour hierarchies. Ukeles' choreographed performance at the Wadesworth Art museum in Connecticut involved the artist, the museums head conservator and a member of the museum's maintenance staff. 'Transfer: The Maintenance of the art object' was performed around a vitrine displaying a female Egyptian Mummy. Ukeles had the maintenance worker complete his regular duty of cleaning the vitrine. She then repeated the process herself, but labelled her work as art. Thereafter the display case could only be cleaned by the conservator. Ukeles description of her work was: "we were photographed at the beginning, and we were photographed at the end. The same people lined up the same way. But the notion of value had floated through me from the worker to the conservator"(cited in Petrossiants, 2018).

As we are all currently living through a global pandemic, nearly 50 years later Ukeles's performance still seems relevant. This crisis has revealed the inequalities within our society. In the UK, men in low-skilled jobs were found to be almost four times more likely to die from COVID-19 than professionals (Carney, 2021). Essential workers have been undervalued, yet it seems the only way out of the pandemic will be by the efforts made by these key workers in feeding people, testing them, treating them and vaccinating them. The heroes are in the maintenance.

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