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## **Accidentology: Towards a Sociology of Accidents and Disasters**

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# Accidentology: Towards a Sociology of Accidents and Disasters

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## Abstract

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While the unintended consequences of social action have exercised the sociological imagination since the discipline's inception, sociology is yet to fully develop a systematic study of accidents and disasters. Leading figures in the field criticise current work on accidents for being piecemeal and isolated from mainstream sociology, for lacking theoretical innovation, for being blind to differential suffering and for being largely silent on questions of power. This article advances a case for an accidentology which will rectify these perceived flaws. It also advocates accidentology on the basis that accidents are socially patterned, that they are understudied compared to other social problems, and that they are increasing in scale, frequency and severity. In making these arguments we also consider what the examination of accidents and disasters will reveal.

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**Keywords:** accidentology, accidents, disasters, unintended consequences

# Accidentología: Hacia una sociología de los accidentes y de los desastres

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## Resumen

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Mientras que las consecuencias no deseadas de la acción social han ocupado la imaginación sociológica desde los inicios de la disciplina, la sociología aún tiene que desarrollar completamente un estudio sistemático de los accidentes y los desastres. Entre las críticas más importantes que los principales autores en accidentología realizan a la actual investigación sobre accidentes encontramos que se trata de estudios fragmentados y aislados respecto de la sociología mayoritaria, que carece de innovación teórica por no prestar atención al diferencial de sufrimiento y por las grandes lagunas respecto a temáticas de poder. Este artículo aporta un caso de accidentología que cubre tales carencias. Así mismo, aboga por una accidentología que parta de la base que los accidentes están modelados socialmente, de que están infraestudiados respecto de otros problemas sociales, y de que en los últimos años los desastres y accidentes están aumentando en escala, frecuencia y severidad. Con este trabajo, y partiendo de estas premisas, realizamos una contribución a señalar lo que el examen de accidentes y desastres puede revelar.

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**Palabras clave:** accidentología, accidentes, desastres, consecuencias no deseadas

This article begins with the observation that sociology has a long history of studying the unintended or accidental consequences of social actions but is paradoxically still to develop a solid sociological study of accidents. Current criticisms of the field are noted and reasons for systematically developing the sociology of accidents and disasters (referred to here as accidentology) are offered. We look at what accidentology is likely to reveal, we consider the normality of accidents in our world and we criticise the notion of accidents of nature as natural disasters are always socially mediated. Following Charles Perrow (1984, p. 64) this article defines accidents as unintended events that damage people, materials and systems. Disasters are defined as big accidents, human and “natural” accidents that are large-scale, expensive, public, unexpected and traumatic (Turner & Pidgeon, 1997, p. 19).

### **Sociology and the Unintended**

Sociologists know that life does not always go as hoped. Modern existence is beset by all manner of crises: economic, environmental, existential. They also know that life does not always go as planned. Indeed, the unintended consequences of purposive human action have exercised the sociological imagination since the discipline’s inception. Sociology has even been positioned as *the* analysis of the unexpected (Portes, 2000). Robert K. Merton (1936, p. 894) remarked that every social theorist worthy of the name has engaged with this issue, while Karl Popper (1963, p. 342) argued that it should be nothing less than the theoretical social sciences’ primary task. Even if we restrict ourselves to the discipline’s founding fathers we can think about Karl Marx’s work on the tendency of the rate of profit to fall, Max Weber’s writings on the growth of capitalism from Calvinist practices and Émile Durkheim’s observations on how the pathological can emerge from the normal (and how the pathological can be normal).

Marx’s focus on dialectics and contradictions is seen to be evidence of an interest in the unanticipated (Elster, 1985). There can be marked differences between individual actions and overall design. Individuals have desires, they act upon them and their aggregation determines the end result. In some instances, as with one of political economy’s most

important laws – the tendency of the rate of profit to fall – the intentions of individual actors to increase their profitability results in its very antithesis. Increased investment in constant capital relative to labour (variable capital) may increase productivity but it will ultimately reduce profitability as labour is the source of profit. Anything which reduces surplus labour time relative to overall production capital will impact on profits. Jon Elster (1985, p. 48) thinks that Marx's attention to the unintended collective consequences of individual actions 'is [his] central contribution to the methodology of social science'.

Wolfgang Schivelbusch (1986, pp. 132-133) interrogates the source of Marx's interest in the unintended. He believes that it comes from one of the traumatic phenomena of modernity: the technological accident. Marx then projected this back onto political economy, although a genuine materialist conception of history would need to pay account to the exploitation of things as well as people. Pushed to extremes materials also show fatigue; boilers explode, locomotive axles snap. In nineteenth century thought the technological accident arose through disruption to the machine's equilibrium, the relationship between contained energy and the method of containment. Marx, he says, similarly saw economic crisis as disturbance in the balance between purchase and sale in the flow of commodities.

Peter Berger (1968) observed that the unintended consequences of human action were also a recurring motif in the work of Max Weber. Sociologists have long understood history as something more than the triumph of collective will or the rule of great ideas. In *The Protestant Ethic and the Spirit of Capitalism* Weber noted the linkages between religious and economic practice. Calvin's doctrine of predestination led people to act ascetically in all aspects of life, economic life especially. This, he argued, gave rise to the ethos of capitalism, something that the founders of the Calvinist Reformation never envisaged: 'In other words, Weber's work ... gives us a vivid picture of the irony of human actions' (Berger, 1968, p. 52). In this case an economic system is the accident of a religious denomination.

Émile Durkheim (1965, p. 47-75) discusses normality and pathology in *The Rules of Sociological Method*. Normal practices and phenomena are generally distributed, pathological (or morbid) ones are not. In this

work he stated that if anything is to be interpreted as pathological it is surely crime. This is the starting premise of Criminology (Durkheim, 1965, p. 65). What is considered normal is often also that which is useful or generally acceptable. Again, crime seems to oppose these notions. Yet Durkheim was able to argue that crime was both normal and unintentionally positive. Crime is found everywhere, in all societies at all times. Moreover, Durkheim suggested, crime rates are increasing. ‘There is, then, no phenomenon that presents more indisputably all the symptoms of normality, since it appears closely connected with the conditions of all collective life’ (Durkheim, 1965, p. 66). This point is pushed further, with Durkheim suggesting that crime is an important element of a *healthy* society. Crime is normal as no society exists without it, social complexity is such that we can never achieve universal uniformity. Moreover, crimes reaffirm collective sentiments regarding public morality and law. This makes crime both ‘necessary’ and ‘useful’ (Durkheim, 1965, p. 70). Crime and deviance more generally also offer another social good: the prospect of change. No value or practice endures forever. Criminal acts test conventional boundaries.

Strangely, while sociologists have always acknowledged accidental events they have yet to develop a systematic study of them. Leading figures in the field like Diane Vaughan (1999) and Kathleen Tierney (2007) criticise sociological work on accidents for being piecemeal and isolated from mainstream sociology, for lacking theoretical innovation, for being blind to differential suffering and for largely being silent on issues of power. As late as 2010 Tierney (2010, p. 661) could complain that ‘political power still receives little emphasis’. In short, we await a fully-blown “accidentology” (Virilio, 2007, p. 10).

### **Why do we need an Accidentology?**

Aside from rectifying the problems that Vaughan and Tierney have identified, why might we want an accidentology? Three arguments can be advanced. First, all of the available evidence suggests that accidents are increasing in their scale, frequency and severity (Klein, 2007, p. 415). Wolfgang Kröger (2005) of the International Risk Governance Council notes their massive growth over recent years. This has resulted

in almost half a million deaths, with a further 2.5 billion individuals adversely affected. In addition to the staggering human costs, economic losses from accidents were calculated at USD\$690 billion. Kröger's argument squares with that of the Swiss reinsurance industry (Bevere, Rogers & Grollmund, 2011), and also with well known "disaster scholars" like Charles Perrow. In *The Next Catastrophe* Perrow (2007, p. 1) wrote: 'Disasters from natural sources, from industrial and technological sources and from deliberate sources such as terrorism have all increased in the United States in recent decades and no diminution is in sight'. Indeed, writes Ulrich Beck (1992, p. 52), we now inhabit a risk society in which 'the unknown and unintended consequences come to be the *dominant* force in history and in society'. Increasing levels of interconnection and interdependence increase our vulnerability. For example, the first automobile plant to cease manufacturing following the Fukushima disaster was a General Motors truck plant in Louisiana (Bunkley, 2011).

Second, although accidents are a significant social problem their study remains underdeveloped relative to other social problems like suicide. Yet figures from the early 1990s show that in England and Wales accidents were responsible for more than double the deaths of suicides and they have been the leading cause of childhood fatalities for over a generation (Green, 1997, p. 6, 8). These sobering figures are unlikely to improve. Judith Green (1997, p. 8) makes the point that in an era of decreasing mortality in the West, child mortality especially, accidents will increasingly figure as the cause of death. The World Health Organization shows us the bigger picture. It does not record statistics on accidents and suicides per se; rather it records unintentional and intentional (self-inflicted) injuries. In 2002 unintentional injuries accounted for 6.2% of all global deaths, and self-inflicted intentional injuries accounted for 1.5% of all fatalities (World Health Organization, 2004). The most recent WHO statistics pertain to 2008. In that year 6.4% of global deaths were accidents (including road traffic accidents, drownings, falls and fires) and 1.4% were self-inflicted injuries (World Health Organization, 2011).

Significant those these findings are, if we expand our horizons to consider large-scale disasters, the pan-European world appears as an

enclave of privilege. In the three decades from 1963 over 90 per cent of all major global disasters (measured by incidents that result in over 100 deaths, damage of one per cent of GDP or that affect one per cent of the population) took place outside of the western world (Smith, 1996, p. 3). Throughout the 1990s 96 per cent and 99 per cent of people killed or adversely affected by hazards lived outside of North America and Europe respectively (Walker & Walter, 2000, pp. 173-175). Typically, the Rest suffer far more than the West. This suggests that a properly developed accidentology should be wary of theoretical pronouncements regarding general conditions, for example Ulrich Beck's (1992, p. 36; 1999, p. 62) work on a generic global risk society in which hazards are democratised. After all, the available evidence suggests that there are clear and massively uneven geographies of risk (on this see Tierney, 1999).

If accidents and catastrophes were always unwilling and unanticipated events and if they randomly impacted upon society there would be little room for sociological intervention. However, from the late nineteenth century onward, sociologists have known that accidents are socially patterned. This gives us the third reason for sociological intervention. Durkheim (1979, p. 120) noted how accidents are influenced by season in temperate climates. Official statistics (Durkheim cited three years' worth from Italy) show an increase in accidents in summer, when social activity is at its peak. The next highest season for accidents is winter, which Durkheim said brings its own hazards, specifically the increased likelihood of falls. Research by sociologists of accidents has revealed other remarkably consistent patterns in which the isolated, weak and less wealthy consistently fare worse. As Mikael Elinder & Oscar Erixson (2012) showed in a study of maritime disasters affecting 15,000 people across three centuries, even at sea women and children do not come first. Men do not give priority to women, and crew do not give priority to passengers. This social patterning applies to accidents of nature like prolonged heat waves (Klinenberg, 2002) and severe storms (Squires & Hartman, 2006); it also applies to technological accidents like car crashes, which are currently the fourth biggest killer of the world's 18-59 year olds. In this instance it is the young rather than the old, the populations of the global south rather than the north, the



pedestrian rather than the driver that overwhelmingly pay the price (Roberts, 2003). According to the World Health Organisation's (2009) *Violence and Injury Prevention and Disability* (VIP) programme 90% of all vehicle related deaths are in the developing world, the financial costs of which exceed what these nations receive in aid payments.

Clearly risks are not generic. Vulnerable and marginalized communities are structurally placed so that the chances of them living through and dying from accidental encounters are greatly magnified. This social fact is a call for a more purposive, as opposed to accidental, engagement with them. There is, for example, an entire literature on environmental justice, which looks at the siting of toxic waste dumps (Mohai 1995; 2008). In the United States of America race appears to be *the* determining factor in terms of chemical hazard exposure (Bullard, 1998). For accidentology to have any purchase, then, it must also develop a nuanced victimology.

### **What will Accidentology Reveal?**

Our survey thus far has suggested that accidents are very much part of the modern condition, a source of significant (and growing) physical insecurity and of existential angst. They are syndromes of our times. On this basis alone they demand the attention of social theorists who are tasked with making sense of the present. But there is an additional reason for considering the accident. Accidents afford us insights into social reality that ordinarily pass unnoticed. Thinkers of various persuasions have long held that the truth only reveals itself in these moments of rupture. For this reason Paul Virilio has called the accident 'a profane miracle' (Lotringer & Virilio, 2005, p. 63). What it primarily reveals for him is the substance of technology and the underside of progress. Discovery begets catastrophe. Each technology is also the invention of a specific accident. The ship begets the shipwreck, the railway the collision and derailment. Bruno Latour (2005, p. 81) offers a similar argument. The sudden malfunction of technological accident provides a rare moment of visibility in which the agency of objects is finally exposed. The stubborn refusal of something to work automatically (which usually means invisibly) gives us occasion to think

about what it actually makes possible. Other thinkers have argued that accidents reveal yet more, the workings of the world of politics.

In a classic 1970 publication [Harvey Molotch \(1970, p. 143\)](#) advocated the accident as methodology. They provide windows into the workings of the powerful that are normally obscured to us. His case study was of an accidental oil spill off the Californian coast. Upset locals should have been in a strong position to take the fight to Standard Oil when crude leaked from Platform A into the Santa Barbara Channel. Santa Barbara is populated by people with an abundance of cultural and financial capital. It is a town full of elite people with good connections. Yet these resources proved all too meagre in the face of Big Oil. Oil was not the only thing to ooze from the platform, as Molotch wrote, ‘a bit of truth about power in America spilled out along with it’ ([Molotch, 1970, p. 131](#)).

In the immediate aftermath, Interior, the US Geological Survey, the US Navy and even the President himself, along with other major actors, lined up to support corporate power, making for a textbook case in ‘the mobilization of bias’ ([Molotch, 1970, p. 138](#)). As Molotch observed, the oil industry provides the data that allows federal agencies to regulate it and it provides the university grants which allow academics to study it. Despite the protests of locals Interior refused to stop the drilling. The US Geological Survey accepted Union Oil’s definition of reality, assenting to their assessment of the size of the spill. Independent experts offered a figure ten times higher. These were dismissed. Dead wildlife was also systematically undercounted by the authorities. The only dead to qualify were those that made it to the officially set up bird cleaning facilities. (Molotch noted the inefficiency with which dead and dying birds move.) In a similar vein the US Navy disputed the observations made by marine biologists at the University of California Santa Barbara and staff at the local natural history museum. They had both claimed that large numbers of sea lion pups were dying. The Navy which administered the Channel Islands disputed this: in their opinion the animals were merely sleeping not dying. Finally, the world’s most powerful man, President Richard Nixon, was flown in by helicopter to provides a rare moment of visibility in which the agency of objects is finally exposed. The stubborn refusal of something to work

automatically (which usually means invisibly) gives us occasion to think provides a rare moment of visibility in which the agency of objects is finally exposed. The stubborn refusal of something to work automatically (which usually means invisibly) gives us occasion to think

More recently Frank Trentmann has also argued that accidents open up everyday life's politics. He writes: 'A power failure, a water shortage or a public transport system breaking down can raise questions about accountability (who is to blame), entitlement and social justice (who should get what) and, most profoundly, about "normality" (how can or should members of a society live)', he therefore argues that, '[d]isruption ... is a particularly useful way to explore connections between practices, politics and socio-technical systems' (Trentmann, 2009, p. 69).

Molotch and Trentmann give us some ways to think about the politics of accidents: accidents rupture the order of things, they give us details that the powerful would prefer to hide. In this view accidents present the powerful with problems. But it would seem that there is more to the politics of accidents than this. Surely the reverse can also apply: accidents can provide the powerful with opportunities. The earliest sociology alerts us to the politics of accidents. For example Durkheim's classic study on suicide noted that things may be counted as accidents in official statistics when they are not. Suicides by vehicle, Durkheim (1979, p. 18) wrote, are mostly coded as accidents. This is a way of avoiding moral opprobrium. The powerful may also invoke accidents for precisely the same reason: to avoid condemnation and to explain away events that they would otherwise have to take some responsibility for. Such an argument has been made regarding President Barack Obama's June 15, 2010 address to the public from the Oval Office:

Good evening. As we speak, our nation faces a multitude of challenges. At home, our top priority is to recover and rebuild from a recession that has touched the lives of nearly every American. Abroad, our brave men and women in uniform are taking the fight to al Qaida wherever it exists. And tonight, I've returned from a trip to the Gulf Coast to speak with you about the battle we're waging against an oil spill that is assaulting our shores and our citizens (Obama, 2010a, para.1).

David Bromwich (2010, p. 5) noted the political machinations at work here: an environmental disaster, a human one and a financial one are all given the same ontological status; moreover they are all presented as unpredictable and uncontrollable accidents. No one is responsible for them, no one is to blame. ‘But’, as Bromwich (2010, p. 5) notes, ‘the wars were caused by Cheney and Bush, the collapse ... by the profiteers of the mortgage bubble and their trading partners, and the oil spill by the corporate malfeasance of an unregulated oil giant.’

### **The Normality of Accidents**

Deepwater Horizon was something of a personal embarrassment for Obama. Only 2 weeks prior to the world’s biggest ocean oil leak he had said the following: "It turns out, by the way, that oil rigs today generally don't cause spills. They are technologically very advanced" (Obama, 2010b, para. 49). (The same speech also praised Japan’s safe and secure nuclear energy.) This serves as a reminder of the complexity of modern socio-technical systems. They are not necessarily understood by anyone. Bryan Wynne (1988, p. 149) suggests that we think of them ‘as a form of large-scale “real-time” experiment’ which enmeshes us all. Or simply put, as accidents waiting to happen. Wynne builds an empirical base for this conclusion from numerous sources. He considers several cases including the *Challenger* space shuttle disaster and the handling of highly toxic methyl isocyanate (MIC), neither of which he takes to be exceptional. Wynne suggests that experts work under greater ambiguity than is ordinarily supposed, particularly when they are involved with multi-sited systems. For him the bulk of our technologies are precisely these complex interlinked systems (they are “extensive” and “open-textured” in his terminology).

It is commonly believed that we have rules and then practices, but Wynne refutes the idea that we normally have a system in which devices, power sources and people operate with a shared logic of rational, rule-bound behaviour. Gaps exist between technology in theory (design and rational planning: what it should do) and technology in practice (use and emergent rule-making: what it actually does). The latter is never a final accomplishment; it always remains an ongoing

process. These practices of contextualisation and informal rule development impact upon the technology, complicating notions of risk. As Wynne sees it, technologies are “normalised” through unanticipated developments. Accidents, then, bring normal technology into question.

In the case of the *Challenger* space shuttle, NASA was fully aware that some components and subsystems were not in proper working order. This had been the case with previous missions, none of which came to a catastrophic end. The *Challenger* explosion was caused by leaking O-ring seals on the solid rocket boosters. Earlier launches demonstrated thermal stressing of the O-rings and leak paths in the surrounding insulation. It was widely agreed that the O-rings had never performed as they should. They were frequently burned or broken, and they were liable to leak. They were acceptable as opposed to optimal. This was but one component not working to script. The result was that notions of safety shifted. What was taken to be safe was negotiated informally in-house. Observable failures were a matter of ongoing debate, but it was agreed (wrongly in retrospect) that all failures were within acceptable limits.

Wynne identifies three elements of technological normalization: institutional, contextual and systemic. First, as the work of organizational sociologists has demonstrated, organizations develop working routines and rules that are frequently at odds with official organizational norms. The NASA *Challenger* example is pertinent here. Second, technologies work in concrete and complex circumstances, including ones for which they were never designed. Japan’s nuclear power plants are a case in point. Most reactors are American designed. They were not created with earthquakes and tsunamis in mind (Sawada cited in Jamail, 2011). Slippage can occur between various contexts of use as technologies are adapted for local conditions. Third, slippage is exacerbated in the case of large-scale systems where contextualization may only be partial, for example, parts are absorbed (or are not) into the local regulatory structures fragmenting the overall operating system. When there are cross-cutting rationalities the potential exists for yet further problems. Wynne cites the case of a French factory that was storing and distributing MIC, the chemical responsible for thousands of deaths in Bhopal when it leaked from a Union Carbide plant. Regarded as one of the world’s worst industrial disasters, stringent safety

procedures for dealing with the chemical were introduced in its aftermath. While the factory was exercising due care, at another point in the socio-technical system (the port in Marseilles) the MIC was being processed as if it were any other substance. Dockworkers, used to standardised productivity-based pay, were unloading it as fast as possible when extreme care was required.

The classic exposition of this position comes from Charles Perrow who argues that many of today's calamities are nothing other than the routine outcomes of our complex, tightly-coupled, and ultimately unmanageable, technological arrangements. To use his word, they are normal. Accidents are to be expected in complex hi-tech assemblages. This is because the potential exists for failures within the system to interact with each other in unanticipated and often incomprehensible ways. These will be particularly devastating in "tightly coupled" systems where processes are rapid, intimately linked and hard to stop. Such accidents are the outcome of several failures in processes, planning, personnel, procurement, technologies, materials and environment. The lesson [Perrow \(1984, p. 64\)](#) draws from all of this is that we should modify our management of systems where the risks might be acceptable (where possible looking to forge "loose couplings") and abandon systems where the consequences of accidents are too great (nuclear power, for example).

Perrow's arguments are derived from a number of case studies, including the partial core meltdown at the Three Mile Island's Unit 2 nuclear plant in Pennsylvania. Initially the plant's operators were vilified. Blaming workers seems to have a long pedigree in capitalist industry. In volume one of *Capital* [Karl Marx \(1990, p. 363-365\)](#) wrote of three London railway workers who found themselves in the dock following a major passenger train accident which resulted in numerous fatalities. The jury were told that the workers' days stretched anywhere between 14 and 20 hours, but could be triple that during peak times. Fatigue inevitably led to errors. All the same, they were charged with manslaughter. Marx also wrote of firemen and factory employees who found themselves in mortal danger from accidents due to working shifts that exceeded 24 hours. There can be no doubting [Perrow's \(2007\)](#) political sympathies here, which clearly align with Marx. His follow-up

book contains the chapter: “Are Terrorists as Dangerous as Management?”

In the case of the Three Mile Island plant it would emerge that the maintenance team were understaffed and overworked, but subsequent investigation showed systemic failures: pumps failed, valves were in the wrong position, a warning light was covered over on an instrument panel, an ASD (automatic safety device) and its indicator failed, as did a PORV (pilot operated relief valve), none of which the plant’s operators could have been aware of. Well after the fact the experts still debated whether or not the workers should have cut back on the HPI (high pressure injection) which forces water into the reactor core, or whether or not hydrogen bubbles could have formed in the overheated fuel rods presenting the possibility of explosion (Perrow, 1984, p. 17-29).

For Kai T. Erikson the events at Three Mile Island provide a paradigm case. Modern risks associated with toxins constitute ‘a different species of trouble’ (Erikson, 1995, p. 17) whose ramifications are psychological, physiological and sociological. They differ in terms of the damage they do and the legacy they leave. Poisons create their own peculiar fears. Individuals and communities find contamination by them more frightening than the damage done by natural hazards or machine-related accidents. They are upset by them in entirely novel ways. This occurs for a number of reasons. Toxic disasters have undefined lifecycles. They do not simply begin, exist and then end. Their duration is not obvious and their effects are deferred. This creates the conditions for a perpetual state of fear. No one knows how much radiation was accidentally released from the reactor or the real harm that it did, thus ‘the feeling generated there was pure dread, perfect dread, the very essence of dread’ (Erikson, 1995, p. 140). Such fear is intensified as these threats typically evade bodily protection mechanisms: our senses. We do not know when we are at risk. Ill-defined, imperceptible and therefore difficult to counter, communities tend to display profound feelings of inadequacy at being so out of control. The poison seems to exert agency. People become passive, putting their lives on hold. This leads to a final difference between toxic events and older forms of risk: the former weaken social bonds whereas “traditional” disasters tend to strengthen them (Wolfenstein, 1957; Barton, 1969). To summarise, these events are unbounded, less likely to

observe the spatial and temporal limits of other disasters, they are also uncanny. These risks are disembodied, unsettling and socially corrosive. Moreover, this new species of trouble is on the rise, 'becoming one of the social and psychological signatures of our times' (Erikson, 1995, p. 240).

### **Accidents of Nature?**

Just as we may need to dispense with the traditional temporality of accident research – that they have a discernible beginning, middle and end – we may also need to dispense with another idea, that there is such a thing as a natural disaster. Distinctions between “external” accidents of nature and “internal” technological accidents are increasingly difficult to sustain. After all, natural disasters are simultaneously sociotechnical events. As [Scott Huler \(2011\)](#) blogged of the March 2011 earthquake off Japan’s Tōhoku coast which created a tsunami which came ashore to disastrous consequence:

The tsunami spent about an hour as a natural disaster, then a few days as an issue of emergency response. But the long term, the situation emerged as a pure crisis of infrastructure. Recall that Japan was already coping with the problems created by trying to run itself without the Fukushima plant. This was made even more complex by Japan’s use of both 50-hertz and 60-hertz electrical grids, caused because Japan never adopted either the North American (60-hertz) or European (50-hertz) electrical standards. Let’s not even bring up how the most serious problems were caused by decades of failure to create a long-term solution for radioactive waste, or the possibilities of thorium power generation. The point is, you start with an earthquake and a tsunami, and a cup of coffee later you’re talking about generating electricity with rare-earth mine tailings ([Huler, 2011, para. 5](#)).

To anyone that followed the media at the time it readily became apparent that discussion about the destructive wave that smashed into the Tōhoku coast was soon eclipsed by heated debate about the placement of coastal communities, rural-urban drift, the fragility of supply chains, long-term food security, safe energy provision, suitable



infrastructure, the role of the media and the transparency of Japanese politics (Sand, 2011, pp. 34-35; Perrow, 2011; Huler, 2011; Watts, 2011).

Designating something an accident or a natural disaster may also blind us to the structural violence of social systems (Soron, 2007). Consider Hurricane Katrina. Certainly a great part of that disaster was caused by the awesome power of nature. No one can accuse America's political masters of conjuring a Category Five hurricane. The power elite were not responsible for the build-up of low air pressure which caused the tropical wave or the warm core storm system that is the tropical cyclone. Nor were they accountable for the warm water temperatures of the Loop Current in the Gulf of Mexico, the low wind shear, or the anticyclone in the troposphere which all helped fuel it. They did not decide where Katrina would come ashore, but they did know what the consequences of a storm surge from the strong winds, heavy rains and high waves would be for the city of New Orleans. Moreover, a string of political decisions intensified Katrina's devastating impact.

Increasing knowledge of the scale of the potential risk was met by actual reductions in public expenditures by federal, state and city authorities to counter it. There were no contingency plans to evacuate the helpless. In an ominous prequel to Katrina the poorest sector of the population were left behind when Hurricane Ivan struck in September 2004. Administrative negligence was manifest in both the failure to upkeep levees and to improve them in the knowledge that the current defences were inadequate. Not that all were equal before the elements. Some were protected better than others. The levee system contiguous with the Mississippi river varied in height and maintenance levels. This was indexed to the value of the land and the people behind them. The most vulnerable populations were the poor of the Upper and Lower Ninth Wards, particularly the African American poor who had already been condemned to years of systematic neglect. Such people were surplus to requirements. It was hoped that they would go elsewhere leaving the Big Easy a Disneyfied version of its former self to be enjoyed by tourists and endured by a small retinue of service workers (Davis, 2005).

This accident of nature could only be as disastrous as it was because of a series of conscious political decisions, including calamitous exercises in the outsourcing of essential services to private contractors before and after the event, and the massive engineering project which created the Mississippi River Gulf Outlet (MRGO) for commercial shipping. MRGO constituted a manufactured hazard. A 75 mile ditch that connects the city to the Gulf, its construction killed off salt-sensitive vegetation that had helped to protect the city. Tens of thousands of acres of wetlands were destroyed. Moreover MRGO effectively made for a “hurricane highway” allowing floodwater to inundate the city (Freudenburg, Gramling, Laska, & Erikson, 2008, p. 1026). A hurricane was unavoidable. A humanitarian disaster was not. In consequence Katrina can be seen as a ‘socially mediated’ storm (Žižek, 2008, p. 80), the ‘deadly combination of weathered public infrastructure and extreme weather’ (Klein, 2007, p. 415).

Accidents and natural disasters also provide the powerful with lucrative opportunities. Massive private profits can be made from public pain. Naomi Klein (2007) documents this, tracing the post-9/11 security boom in which a slew of state services have been outsourced to corporate contractors. Milton Friedman’s work gives this movement its ideological drive. This advances capital and corporate power at the expense of organised labour. It stresses privatization, deregulation and wholesale reductions in state spending. Catastrophes present market opportunities. Accidents, natural disasters, wars and political upheavals provide the material conditions for these neo-liberal ideas to take hold. The social dislocation and disorientation that accompanies collective shock creates the opportunity for intervention. Resistance is weak, people are desperate. Thus Sri Lankan fishing communities were to vacate their waterfront properties for hotel development following the 2004 tsunami, just as the inhabitants of New Orleans were expected to forego public housing and schooling after Hurricane Katrina. Klein calls this hyper-profitable shock therapy “disaster capitalism”. Other disaster researchers have noted a pattern to the normal operation of capitalist development, citing MRGO as one of their examples. In this sense power elites do not seize on disasters so much as they create them. MRGO was proposed in the name of economic development. When the “benefits” were analysed it emerged that the costs of the public works

were democratised, the financial benefits concentrated and the true risks hidden (Freudenburg, Gramling, Laska, & Erikson, 2008).

### **Conclusion**

This article has advanced an argument for developing the sociology of accidents and disasters. It has done so on the basis of criticisms regarding current research, that the scholarship is fragmented and adrift from mainstream sociology. This has two flow-on consequences; the research often overlooks theoretical advances within sociology and it can also overlook something which constitutes sociology's core business, notions of power. The argument in favour of accidentology becomes all the more pressing when we consider the social patterning of accidents (in terms of both their causes and consequences), and their growing salience in our world in terms of their financial and social costs; the latter coming about because of their growing frequency and severity.

Social theorists have argued that we now dwell in the era of the generalized accident (Virilio, 2003), that the risks and dangers inherent in technological development and use drive the motor of social change (Beck, 1997, p. 23), that contemporary life is its own disaster movie (Baudrillard, 1994, p. 40) and that the shared fear of catastrophe is what now coheres us (Žižek, 2008, p. 79). By Virilio's reckoning we anticipated war between the nineteenth and twentieth century. Between the twentieth and the twenty first century we anticipated revolution. Now we anxiously await the accident (Lotringer & Virilio, 2005, p. 81).

Far from seeing accidents as a string of meaningless aberrations our survey has given substance to Virilio's call for an accidentology, alerting us to a range of reasons why they might warrant our attention. Accidents and disasters are events and conditions which illuminate our times. They draw attention to systemic things which would otherwise pass unseen, revealing social order and everyday reality. Accidents and disasters force us to re-examine common-sense assumptions about complexity, control, discovery, expertise, predictability, progress and risk. In so doing they place social arrangements, expert and political decisions and technological choices into sharp relief. They have the potential to reveal

the substance and the agency of technology, the frailty of our organisational matrices, the structural violence of our social systems and the mobilisation of bias therein. Time, then, to develop a solid sociology of them.

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