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When normality fails: Discursive reactions to disaster

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Abstract

Shocks from disasters challenge the normality of everyday life. Emotional and political reactions include anxiety and blame, but these must come together with knowledge through shared discourse to formulate responses, often immediate. The study draws on a phenomenological analysis of personal experience and discursive reactions to fires and the pandemic. It is informed by ethical and social approaches to epistemology and discourse, drawing on sociology of knowledge and studies of rhetoric. From this it is concluded that facts are agreed elements for debate, as in the legal tradition, rather than guarantees of certainty. Knowledge relevant to disaster discourse arises through shared experience and robust communicative institutions, from the local to the scientific, and including the wisdom of First Nations. Disasters are uncanny because they defy everyday know-how. In disrupting the relationship of people to their milieu, they require a new accommodation among and between human and non-human actors.

Key words

Disasters; epistemology; discourse; Canguilhem; disruption

Resumen

Los impactos de las catástrofes desafían la normalidad de la vida cotidiana. Las reacciones emocionales y políticas incluyen la ansiedad y la culpa, pero éstas deben unirse al conocimiento a través del discurso compartido para formular respuestas, a menudo inmediatas. Este estudio se basa en un análisis fenomenológico de la

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experiencia personal y de las reacciones discursivas ante los incendios y la pandemia. Se basa en enfoques éticos y sociales de la epistemología y el discurso, recurriendo a la sociología del conocimiento y a los estudios de retórica. De ello se concluye que los hechos son elementos consensuados para el debate, como en la tradición jurídica, más que garantías de certeza. El conocimiento relevante para el discurso de las catástrofes surge a través de la experiencia compartida y de instituciones comunicativas sólidas, desde lo local hasta lo científico, pasando por la sabiduría de las Primeras Naciones. Las catástrofes son insólitas porque desafían el saber cotidiano. Al trastornar la relación de las personas con su entorno, exigen un nuevo encaje de actores humanos y no humanos.

Palabras clave

Desastres; epistemología; discurso; Canguilhem; perturbación

Table of contents

1. Disaster discourse

1.1. Purpose and structure of the inquiry

This paper inquires into the means available for discussing and adapting to situations of disaster, threat or disruption. This adaptation relies on the sorts of knowledge we need to negotiate the world, in both "normal" and disrupted situations. Such knowledge lacks the clarity of formal science (though, as will be seen, it can draw on that) and the certainties of ideal epistemological conditions. Like so much everyday knowledge-for-action, this is always only what we know until the moment we must act. It is also, of necessity, shared knowledge, gleaned from experts and spokespersons, or from others in the same situation. Actions then need to be coordinated with others. Whether this is done cooperatively or competitively is a key ethical issue. This work assumes a preference for cooperation. As will be seen, this might include cooperation with human and non-human actors, as a means of re-establishing equilibrium.

In situations of disaster and disruption, discourse becomes urgent, inflected with fear and mistrust. But the knowledge we need to negotiate the world is not only gained in emergency situations, such as escaping a raging fire or a torrent of floodwater. It can be accumulated over years, through shared expertise and experience of local and global phenomena: topography, weather, local needs and capacities, as well as many other matters. The incidence of a disaster can inform future planning and decision making, including building and location of facilities and residences, and pandemic planning. Long-term accumulation of knowledge also helps in predicting the probability if not the exact timing of disasters, as in the case of climate science.

Knowledge is only useful in conditions of disruption if it is available for interrogation and debate. This might be in local meetings, scientific journals, mass or social media or government policy documents. This paper's focus on disaster discourse requires an examination of the capacity for relevant knowledge to be accessed and properly communicated and debated. It proceeds, first, by clarifying what we are communicating about: what a disaster is; its inputs and agents. Then I address the background to the inquiry, situating it within ethical and theoretical traditions of knowing and communicating. Then the methodology is made explicit: it is a phenomenological analysis of the experience of disaster, with particular attention to what we need to know to deal with it, and how even the most basic know-how of everyday life can be disrupted when "normality" fails.

Following from that, I try to unravel the confusion of competing claims of "facts" versus "ideology" and the many ways these are weaponised in conflicts over disasters and appropriate responses to them. I draw on the study of sociology of knowledge and of ignorance to better understand and, hopefully, defuse these conflicts. Going back to early traditions of rhetoric, law and the origins of empirical science, facts are redefined, not as certainties, but as provisionally accepted elements of an argument or debate.

Then the problem of normality is addressed. Having defined disasters as a deviation from and a disruption of normal life, it is necessary to clarify how equilibrium can be regained. What we experience as disruption and disorder is reimagined as an outcome of maladaptation to a (changed) environment. The restoration of a sense of order or normality flows from a reconception of the self and others in relation to that

environment. As such, it is amenable to discursive interventions, as we come to new understandings of the social, biological or physical challenges we face. The conclusion canvasses some of the epistemological and intersubjective means for achieving new ways of living together in radically altered environments. It is hoped this inquiry will contribute to the conduct of urgent debates about how to adjust and respond to climate change or to a pandemic.

1.2. What is a disaster?

Disasters spring from many sources: natural and human, geological and biological. Their common elements include destruction, disruption, and the generation of fear. Human deaths, during the twentieth century, were more likely (by an order of magnitude) to result from famine or civil strife than from natural disasters such as earthquakes, volcanos, cyclones, epidemics or floods (Blaikie *et al.* 1994, p. 4). Yet the sudden irruption of these natural disasters into taken-for-granted daily life sparks a particular fear and fascination. This is reflected in media attention and public discourse, verging at times on collective panic, with a lust for explanations, from the scientific to the conspiratorial. We distinguish the risk of death by disaster from the dangers of normal life: we speak of death from "natural causes" as opposed to a disaster's extraordinary or "excess" death toll (Trabsky 2021). Disasters are understood, *fundamentally*, as a deviation from the norm.

Already I have referred to "natural" causes or sources of disaster, as distinct from human acts or even, in the terminology of insurance risk, "acts of God".[1] So who or what is "acting"? Who is the "agent" of a disaster? Beck (1999, p. 150) refers to hazards as "quasi-subjects, whose acting-active quality is produced by risk societies' institutional contradictions." Through these nests of agency, between nature, institutions and people, we can understand disasters as phenomena of complex interactions. While a disaster is perceived as an assault from an outside force, a variety of agents and conditions contribute to a disaster, and to its perception as such. These include human preparedness and responses, as well as the various systems and structures in place which may mitigate, or in some cases exacerbate, disastrous consequences. As in so many other contexts, the distinction between natural and human stops making sense, based as it is on a conception of society that is composed only of human actors.

> The state of society depends at every moment on the associations between many actors, most of whom do not have human forms. This is true of microbes – as we have known since Pasteur – but also of the internet, the law, the organization of hospitals, the logistics of the state, as well as the climate. (Latour 2020)

If the following inquiry is to interrogate ways of making decisions about disasters, it must find ways to know and discuss them. This introduction clarifies that we are not simply "talking amongst ourselves", as humans. We are in communication with a range of phenomena or agents, both natural – the climate, the weather, microbes – and human, including our own constructions: institutions and infrastructure, medicines and

[1] This common law concept can be compared with the civil law '*force majeure*', which is more extensive, encompassing "human acts (such as war, strikes, machinery breakdowns) as well as natural acts (such as storms, earthquakes)" (Nygh and Butt 1998, 181). Here machinery is classed with humans, though, following Simondon (2012), we might prefer to allow them their own agency.

machines. Indeed, the advent of the Anthropocene further complicates the mixture of agency in otherwise "natural" phenomena such as weather events. Human causality or responsibility for disasters is one of the most contested areas of disaster discourse.

1.3. Situating the study: Discourse, rhetoric, and epistemology

The preceding section on what a disaster *is* has kept referring to the terms in which it is *discussed*. Disaster is defined by discursive reactions to it. It has already been noted that the slow and devastating attrition of famine gains little attention, little traction as a "disaster", compared to the sudden irruption of the flood, fire, earthquake or epidemic. Reactions to a disaster are calibrated, calculated and constructed through public discourse. Its outlines and impact, as well as possible means of mitigation, are determined through mass media, social media, scientific publications and political debate.

The response to a disaster is not only decided *through* public discourse – discussion and sharing of information, between people and with things – but discourse is an integral part of how we deal with it. This inquiry will be drawn back to the contrast between "top down" approaches – whereby scientific expert committees work with powerful policy makers – and more egalitarian and inclusive "bottom-up" approaches. In either case, the knowledge and actions of everybody are crucial components of successful outcomes. These derive from discourse among people themselves, via whatever media. At the same time, the experts and the powerful seek to influence this knowledge and action through communication campaigns, "nudges" and other behavioural interventions. As stated by a group of 42 authors (Bavel *et al.* 2020) from psychology, neurology, law and other disciplines, publishing in response to the COVID-19 pandemic:

> Because the crisis requires large-scale behaviour change and places significant psychological burdens on individuals, insights from the social and behavioural sciences can be used to help align human behaviour with the recommendations of epidemiologists and public health experts.

Knowledge, discourse and consequent human actions *constitute* the response to a disaster. Bavel *et al*. (2020) promote an approach based in the "social and behavioural sciences" as a means to modify behaviour. For the purposes of this study, as a critical overview of what we *know* about disasters, and how we *discuss* responses, we need to take another step back. To this end the fields of *epistemology* and *rhetoric* are central to the theoretical framework. While both rhetoric and epistemology are vast fields of inquiry, with a daunting literature, the approach taken here situates itself in an Aristotelian ethical tradition, updated with the "new rhetoric" and "social epistemology". Both knowledge and discussion are social endeavours, with ethical implications.

Rhetoric is an essential means to arrive at decisions for action. The discipline must be salvaged from its reputation as either trivial or dangerous (in the hands of demagogues). This disrepute can be traced back to the Renaissance, when the teaching of rhetoric as one of the *trivia* (together with grammar and logic) emphasised elocution and stylistic figures of speech (Petrucci 2000, p. 36): hence the pejorative senses of both "rhetorical" and "trivial". Subsequent Enlightenment demands for incontrovertible foundations of knowledge, based in external data and the certainty of a disembodied logic, continued

the assault on rhetoric and the broader humanist tradition (Gadamer 1989, pp. 21–23, Mohr 2009). Current political concerns might give further impetus to fears of rhetoric as a vehicle for demagogic right wing populism. Yet the study of rhetoric as a means for ethical public debate has an important heritage, going back to Aristotle (1960) and Cicero (1954). The field was revived, as the "new rhetoric" by Perelman and Olbrechts-Tyteca (1969, p. 1), who defined its scope as, "The domain of argumentation [which] is that of the credible, the plausible, the probable, to the degree that the latter eludes the certainty of calculations." The contemporary relevance of the rhetorical tradition will be seen, below, when we discuss the important place of "facts" in public deliberation.

Aspects of epistemology relevant to this study can also be traced back to insights of Aristotle that come together in his concept of a moral education.

> We need such an education to develop all those faculties required for practical wisdom (*phronesis*). Whereas the discovery of truth (*episteme*) may be a private pursuit, (…) the development of wisdom can only result from dialogue with others, and an increased understanding of their points of view. (Mohr 2005, p. 99)

Epistemologies that adopt Aristotelian virtues as relevant to judging truth claims have been called "virtue epistemology" (Crisp 2010, p. 23). The importance of dialogue with others in developing that form of truth Aristotle calls "wisdom" also points to the relevance of "social epistemology": "normative and empirical inquiry into knowledge as a social activity" (Fuller 2006, p. 225). Section 3, below will expand on relevant insights of social epistemology, deriving from sociology of knowledge.

Finally, a key intellectual tradition informing this study, shared with other contributions to this special issue, is Canguilhem's work on the normal and the pathological. There the evaluation of the normal as the desirable state of the organism, as opposed to the pathological, is analysed with great subtlety. Applying this approach to the way we live, and the knowledge we have, before, during and after a disaster, has suggested important insights for this study. Questioning the discourse and experience of normality, of its interruption, and of pleas for a "new normal" or a "return to normality" has brought many issues into clearer focus. Most important is the relationship between the organism and its environment: where disease or disaster change that relationship, there follows a subjective feeling of dis-ease which can be identified as pathological. Yet once we recognise, with Canguilhem, that this is an imbalance between an organism, or a society, and its milieu, the possibilities for readjustment open up in many directions. We no longer expect that the pathology can simply be cured by a magic potion, or a fire hose, but we see the potential for a new accommodation between the various components or actors. Those actors are other humans like ourselves, themselves part of our own milieu, as well as the non-human players – climatic, viral, "natural" – that are more commonly placed outside us as an "environment": a background or field on which we play out our own roles in the foreground of consciousness. This is explored further in the discussion of order and disorder in the penultimate section.

2. Experiencing disaster

2.1. Methodology

Before this inquiry sinks under the weight of theoretical and ethical considerations, it is important to draw it back to an empirical reality. This is to be achieved through a phenomenological analysis of the *experience* of disaster. In recent years hardly anyone in the world has been spared the experience of some disaster, climatic or epidemic. I recount below the genesis of this project in my own experience of successive disasters, from fire to pandemic. The phenomenological research method used here takes its cue from the consequent forced suspension of the taken-for-granted world I have been accustomed to inhabit. Suspension of the taken-for-granted life world is central to phenomenology as a method. The world appears in a new light when we remove ourselves from the normal everyday approach of a purposeful life, where phenomena are perceived for their relevance to our on-going projects. Having performed the phenomenological reduction – or *epokhè* – by bracketting this world of projects and intentions, we can gain new insights (Husserl 1983, §32).

The results may be judged for themselves in the following section. It examines the impact of disaster with a particular focus on its disruption of our experience and knowledge of the taken-for-granted "practical world" (Husserl 1983, §27). This knowledge of "the way things are", and the ways we expect the things and people around us to respond, is the basis of our ability to negotiate the world of everyday life. Yet the normality of that practical world can be disrupted within days, or minutes, when disaster strikes. Disaster thus presents a real life stimulus to the phenomenological technique of stepping outside the "natural attitude" (Husserl 1983, §27, §§30–31). Just as Stiegler (2019, p. 57) called his prison cell a "phenomenological laboratory", so my room, connected to the *Fires near me* app and the Johns Hopkins COVID-19 dashboard, became a place of double *epokhè*, suspended reality offered up for inspection.

However valuable this method may be, it is impossible to live and act within the phenomenological suspension – having bracketted the reality of our world and our projects – without falling down the stairs. Practical knowledge must be re-established, as waking from a dream, or recovering from disaster. We need to reconstruct a known, practical world. The literature of constructivism offers guidance on how this world is built up, as illustrated in its titles: the social construction of reality (Berger and Luckmann 1967), the construction of social reality (Searle 1996), the construction of the social imaginary (Vázquez Medel 2008/09), constructivist epistemology of law (Teubner 1989). Section 3 goes back to the origins of this tradition to draw on earlier insights from Mannheim's sociology of knowledge and Schutz's phenomenology of social meaning. But first, let's deconstruct all this reality, with the help of disasters.

2.2. Personal experience: Raw material for analysis

Disasters make possible a rapid-fire longitudinal study due to the way they irrupt in time (Lanzara 2016, p. 3–5). One minute (or day, month or decade) everything is "normal": the potential for disaster is usually described in risk management and scientific sources, but makes little impact on popular or quotidian perceptions. Then follows a moment of rupture, when the old normal of scientific reports, modelling and

warnings becomes the new reality of death and destruction, experienced vividly both directly and through the media. Then there is a period of adaptation or recovery. The efficacy of response to a disaster will depend, in part, on the information available and the way it is processed.

As I was completing a project on human technological impacts on the environment, the most fierce and widespread bush fires in history were ravaging the east coast of Australia. Having started just south of Queensland's northern tropics in late winter of 2019, they moved with the season nearly two thousand kilometres down the coastal hinterland, through the vast state of New South Wales in spring and summer, to the southernmost mainland state of Victoria in high summer. As they worked their way past my home town of Sydney, and my bush home 65 km further south, I was preparing an abstract for a paper for the conference of the ISA Research Committee of the Sociology of Law Conference scheduled for August 2020 in Lund.

Disaster was on my mind. Amidst the fires mobile telecommunications crashed, water supplies and electricity failed and fuel could not be pumped into the cars people needed to escape the fire zones. The most fundamental challenges were to life, homes and ecology: more than 20 human deaths, more than 2,400 homes destroyed, five and a half million hectares burnt, up to a billion wild animals killed, some species perhaps sent to the brink of extinction.

As I started to prepare a proposal for the Lund conference the novel coronavirus gripped the world. I watched the news of the early outbreak in Italy with horror, keeping in touch with family, friends and colleagues there. In late March 2020 cases in Australia were doubling nearly twice a week. The conference in Lund was postponed; normal life was suspended. Then, in July, low pressure weather systems off the east coast of Australia eroded the shoreline in and near Sydney. Expensive waterfront homes were left teetering over the sea.

Like the fires, like the pandemic, it was all foretold, in principle if not it in detail. Areas of the coast vulnerable to erosion from increasingly severe weather events have been mapped years ago by scientists and government agencies. The WHO, national and international agencies have been planning for pandemics for decades. Scientists worldwide have been modelling impacts of climate change for years. Emergency services chiefs in Australia were trying to warn governments of a horror fire season at least a year in advance. Then, when the disasters strike, strategies, panic and recriminations tumble over each other in public discourse. This is the impetus to the present inquiry, and its raw material.

There are many aspects to the experience of disaster, depending on time and place. Those closest to the disaster, or most affected by it, have "first hand" experience, of loss or illness. Even those who do not lose a home or a loved one experience fear, and perhaps forms of vicarious trauma: it could happen to me; what if it happened to me? will it happen to me? Those without first hand experience of loss come to know of the disaster through signs in their immediate environment: the ambulance or fire sirens, the smoke in the air. And, of course, through reports in the media, where news images can be particularly chilling: walls of flame, mass graves. This makes clear that the response of media outlets plays an important role in the perception of disasters: places with well resourced camera crews; "people like us" being affected; human interest narratives; even

the word "unprecedented".[2] All these factors feed both the fear and the identification of the scale and even the existence of something *as a* disaster.

The anxious question "will it happen to me?" projects experience into the future: what is happening to others *now*, might happen to me *in future*. So the experience of time is not only immediate, but also part of our mental projections and imaginings. Just as a disaster irrupts into the present time, as if from nowhere (or no*when*), there are ways in which our own experience and perceptions of time modulate our experience of it. As well as fear of the future there is also a strong nostalgia for the past. The time before the disaster can seem like a golden age, an age of innocence, "the good old days". There is a nostalgic yearning for the familiar normality (Spargo-Ryan 2020).

There can also be projections of a possible future that is not affected by, or at least not in the midst of a disaster: a post-disaster world, a return to "normality", or a "new normal". These temporal projections are informed by previous experience as well as by the forms of knowledge that we acquire about disasters. If we know nothing beyond our pre-disaster experience, then a post-disaster world can be imagined only as a return to the old normality. But with our knowledge informed by the experience of disaster itself, as well as the many discourses around it, we might imagine a very different future, a future profoundly influenced by the disaster. Particularly when our experience of disaster has been primed by our knowledge of scientific predictions (e.g. the impact of climate change, drug-resistant infections) then the immediate disaster can both reinforce those predictions and induce a greater sense of dread regarding the future, with continuing and perhaps worse disasters to come.

These reflections on the nature of lived disasters provide a baseline for the further analysis that follows. That analysis continues to draw on the phenomenological approach in subsequent reflections on matters such as knowledge of disasters, their causes and prevention, and the interrupted experience of normality.

3. Knowledge and ignorance

3.1. Ways of knowing

Knowledge plays a crucial role in our understanding of and response to disasters. It is important to unravel the various types or conceptions of knowing that are involved. The role of knowledge in preparing for and responding to catastrophic disruption is commonly discussed in the context of science and misinformation; indeed as science *versus* misinformation. We see this in commentary around whether policy-makers, or "people" in general trust, believe or are guided by science. Then, since this is so often not the case, there are recriminations and searches for solutions: what are the barriers to science-based policy? how can science be communicated more effectively? Or, in more negative terms, how can politicians (or other people) be so obtuse, so ideologically driven?

In this dominant discourse, science or reason is played against fake news and irrational responses. Think simply of some familiar dichotomies: climate science and climate change deniers; medical and epidemiological expertise on one hand, and conspiracy

[2] "Unprecedented" was dictionary.com's People's Choice for word of the year 2020.

theorists and antivaxxers on the other; policy and strategy informed by scientists or experts versus partisan "political" or "ideological" responses. These categories are real enough, but they are limited, in terms of people's nuanced understanding of disasters, and unhelpful in finding new ways to deal with challenging situations.

To see past the oversimplified discourse of "science *versus* nonsense", the approach taken here is to better understand the place of knowledge and ignorance in everyday life. In this section we consider various forms of knowledge and their juxtaposition with ignorance and ideology, often assumed to be their opposite. This draws on the established fields of sociology of knowledge (Mannheim 1960), sociology of ignorance (Smithson 1985, Mueller 2018), and phenomenology of the social construction of meaning (Schutz 1967). It is also informed by social epistemology's recognition of science itself as a social activity, in a historical context that intersects with other traditions of thought, including jurisprudence.

Knowledge is not only specialised, scientific or professional information. We know all manner of things to get us by in everyday life: that a seat is for sitting on, or how to get from A to B.[3] As is obvious in these examples, these can be such old, taken-for-granted learning that we are not even conscious of them as "knowledge": they're just how we do things. Yet even these are among the sorts of knowing that are disrupted by disasters. If the road is flooded or blocked by flames we can no longer take a familiar route. To avoid spreading infection by maintaining social distance, we must re-learn whether or where to sit on a seat. Suddenly all sorts of new knowledge becomes necessary: alternative routes, path of the fire, distance travelled by droplets or aerosols. These new sorts of knowledge range from expert medical science to up-to-the-minute emergency notifications and local knowledge. In those simple everyday actions of sitting on a seat or getting from A to B, old and new knowledge must be integrated in instant decision-making processes, acts and projects (Schutz 1967, §§7–9). So knowledge for everyday living and survival is the first and fundamental aspect of knowing. It comes to consciousness in a disaster, having previously been taken for granted.

3.2. Sociology of knowledge

The sociology of knowledge tells us that the distinction or conflict between "science" and "ideology" has a long and strange history. The term "ideology", coined by French intellectuals around the time of the Revolution (Lichtheim 1967, pp. 4–8), was established in serious critical discourse by Marx.

> [I]t is always necessary to distinguish between the material transformation of the economic conditions of production, which can be determined with the precision of a natural science, and the legal, political, religious, artistic or philosophic–in short, ideological forms in which men [sic] become conscious of this conflict and fight it out. (Marx 1970, p. 21)

This opposition between science and ideology bedevilled much Marxist thinking throughout the twentieth century. Labelling one's opponents' political ideas "ideological" seemed to reserve some factual or scientific higher ground for one's own (as Marx does in referring to the "precision of a natural science"). At its worst, this led

[3] This includes what Bissell (2018) has called "transit skills".

to determinist theories of "scientific socialism" that claimed the predictability of revolution or the inevitable triumph of communism. But at the heart of Marx's insight was a far more troubling one, which he and Engels elaborated without fully developing: If *your* ideas are the product of your class and social position, then how can I say that *mine* are not? In the long history of iconoclasm, from the smashing of icons in Eastern Orthodox conflicts, through Protestantism and Reformation, to charges of fetishism (whether by missionaries, Marx or Freud), the idols and ideologies of others are always more easily identified and debunked than one's own (Mitchell 1986, Latour 1996, Bettetini 2004).

Subsequently, however, the Marxian insight that ideas arose from social relations led to Mannheim's development of a rigorous sociology of knowledge. We now recognise that all knowledge is social knowledge, since it arises out of the cultures and experiences that have made us who we are. And it is not simply derived from individual interests, but arises collectively.

> In this connection, it becomes clear that a large part of thinking and knowing cannot be correctly understood, as long as its connection with existence or with the social implications of human life are not taken into account. (Mannheim 1960, pp. 240–1)

This insight meshes with, and develops, the phenomenological point that, as Mannheim himself put it, "the phenomenon of knowing [is] the act of a living being" (Mannheim 1960, p. 268). Beyond that, however, the sociology of knowledge is at the root of two further important developments essential to this inquiry. First, that science itself is a social activity, which guarantees its rigour and reliability without staking a claim to transcendental truth. And second, the sociology of knowledge provides a foil and a foundation for another important field, the sociology of ignorance. The next two paragraphs deal with these points in turn.

Science was well recognised as a social and historical activity in the French tradition, from Koyré and Bachelard in the 1930s through Canguilhem to Foucault and Latour. Such an approach was popularised in the English-speaking world first by Marxist-inspired scientists (e.g. Haldane 1941) and then by Kuhn's (1962/1970) work on paradigm shifts as the basis of "scientific revolutions". Fuller (2006) draws on this tradition to identify the need for a social epistemology. Despite the established recognition of these matters, there is still a popular tendency to reify the findings of science as an ultimate truth. This becomes a challenge for the credibility of science in rapidly developing areas, such as a novel virus, when developing knowledge continually leads to changed expert advice. Demands for definitive, unchanging guidance and a "single voice of truth" (Rait 2020) misunderstand the dynamic nature of scientific work, particularly in multidisciplinary areas involving policy decisions.[4] Similar challenges to science are familiar from debates on climate science. It has become standard practice for lobby groups to seek out, or to manufacture, dissenting views. This strategy is, first, to disingenuously misrepresent the solidity of scientific facts, and then

[4] It is not the place of science or scientists to make policy decisions. While these are made on the basis of best available knowledge and scientific advice, perhaps from multiple fields, the activity of *deciding* – which, in a judicial or executive sense, settles an issue or leads to action (respectively) – must be distinguished from the scientific activity of *investigating* – which is open-ended. See the discussion below on facts in relation to law.

to feign shock, or even to claim fraud, when it is shown that facts can be updated or disputed. This is a recognised strategy to discredit science as a means of confusing public debate so that self-serving heterodox views can be introduced and defended, such as obscuring the health impact of tobacco or the climate impact of fossil fuels (Oreskes and Conway 2011).

3.3. Sociology of ignorance

This leads us to the sociology of ignorance. Just as knowledge is generated in social relations, so is ignorance. Contrary to a notion of ignorance as a simple absence of knowledge, Mueller (2018) points to its connection to the verb "ignore". Ignorance is generated for social interests. We've just noted the manufacture of ignorance by casting doubt on science; it is also well known in racism and the imperialism that spawned it (Villacañas 2019, pp. 34-35). Attention can be actively diverted from knowledge because it is easier not to know, or because interests are served by ignorance. Continuing a 230 year tradition of wilful ignorance of Australia's history of attempted genocide and abuse of First Nations peoples, the Indigenous Affairs Minister in 2016 maintained his ignorance of video images of appalling abuse, amounting to torture, of an Indigenous inmate in a juvenile detention centre in these terms:

> I wish I'd known what I know today, or I knew yesterday afternoon, some time ago, but the facts of the matter were I didn't know. (…) I had never seen the vision, it hadn't come to my attention, hadn't piqued my interest sufficiently. (Doran 2016)

The current Australian government cultivates this same careful diverting of attention from climate change and its effects. This was most notoriously seen in the Prime Minister's December 2019 holiday in Hawai'i, in the middle of the bush fire crisis in eastern Australia, while his government was denying that global heating was a cause. In the same vein as the manufacture of doubt on climate science, a trope that was common in alt-right social media was adopted more widely, including by the Murdoch press in Australia reporting, erroneously and with no foundation, that the fires were caused by widespread arson (Nguyen and Bogle 2020). Here again, ignorance is promoted through wilful inattention, distraction and false information.

3.4. Facts

Amid all the discussion about how knowledge should be disseminated and used, one common demand is for "facts". There are calls for simple factual information, complaints about "false" facts, and so on. Despite a rich history, the concept of "fact" has been reduced to a simple, one dimensional representation of certainty. The term derives from the Latin *factum*, the past participle of *facere*, to do. It was used in Roman and subsequent European legal systems to signify the deed at the heart of a trial.[5] Around 1600 the term was introduced into science by Francis Bacon, a lawyer familiar with the legal concept and a pioneering proponent of empirical science (Shapiro 2000, p. 210). In law, facts must be admitted into evidence, following which they become the basis for building up arguments and making judgments. Yet, to recall the fact-law distinction, the facts do not decide the issue by themselves: this is up to an authorised decision-maker such as a

[5] Cicero (1954, pp. 24-25) defines "argument" as a reconstruction of events as they could have occurred, like dramatic plots: "Argumentum est ficta res quae tamen fieri potuit, velut argumenta comoediarum."

judge. In this tradition facts are the *institutionally accepted* representation of reality. Their weight derives from their admission to the realm of discourse and argument, rather than from any ultimate certainty or eternal verity. This history is worth remembering for its contemporary relevance. Discourse needs accepted parameters for the material it works with, however provisional, so that we can make coherent arguments and reach justified conclusions, leading to specific actions. Yet these materials have no life outside of discourse and human experience: "epistemological concepts are not constants, free-standing ideas that are just there, timelessly" (Hacking 2002, p. 8).

4. Normal and pathological; order and disorder

4.1. Disaster as disruption

In introducing this paper, I referred to the disruption of the normal as a fundamental characteristic of disasters. Here I return to that point, to ask what it is that is so unsettling, and what this tells us about any subsequent attempts to "normalise" the extraordinary. At the heart of our distress in the face of disaster is the disruption of taken-for-granted knowledge about how the world works, and how to get around in it. The familiar suddenly becomes unfamiliar, uncanny in the strict sense of Freud's *unheimlich*. While the German term literally derives from "home" ("unhomely"), the English translation "uncanny" derives from "can", to know how (from the same Indo-European root, *gno*, as "know", Morris 1969). Freud and Lacan have linked this experience to anxiety, which is no doubt one reaction to disaster. Yet the *uncanny* draws attention to the very focus of this enquiry: what we don't know, the absence of know-how, even of know-what, that suddenly confronts us in unfamiliar contexts.

The reaction to disaster can also be explored through Bloch's "anxiety of the engineer", a specifically modern and technological sort of anxiety, based in the very unrootedness of the contemporary city (which now covers the world through its networks).[6] There are images that haunt me from recent disasters. People queuing to use coin operated telephones under an eerie blood-red sky: the electricity is down and phone towers burnt out. There is no power to pump fuel into cars to escape, even if there is an escape route. Or these: arrival halls at airports with no people, the banks of baggage carousels motionless and empty; hundreds of multi-million dollar planes, foil-wrapped in deserts.

Stranded people, stranded technology, stranded assets: a radical mismatch between technical capacity and human need. What is so conspicuously missing in these images is, simply, *normality*. Our activities are disrupted, our technology useless, our old know-how is irrelevant to what we need to know how to do now. The epistemological crisis takes hold at the most basic level of everyday activities. Even while the epidemiologists and infectious disease researchers are scrambling to get the latest findings into *The Lancet* or the *New England Journal of Medicine*, ordinary people are faced with the most basic conundrums of know-how: travelling from A to B; sitting on a bench.

[6] "The city of ever-increasing artificiality, in its detachment and distance from the natural landscape, is simultaneously so complex and so vulnerable that it is increasingly threatened by accidents to the same extent that it has rooted itself in midair (…). This grandly suspended, inorganic metropolis must defend itself daily, hourly, against the elements as though against an enemy invasion" (Bloch 1998, p. 307).

4.2. Disorder and the uncanny

What is the experience of abnormality, then, in this or any other unexpected disaster? One possible answer is "disorder": a lack of order, the absence of any system that is familiar (*heimlich*) or knowable (of which we are "canny"). Doubtless there are people who experience this situation as disorderly, and some who attempt to take advantage of the situation for direct gain (e.g. looting after a disaster), or to create disorder (e.g. "sovereign citizens" and other extreme right groups who protest public health measures). Canguilhem, however, whose work on the normal is the defining ground of this special issue, denies that disorder is the opposite of normality.

For Canguilhem (1991, p. 188), the impossibility of disorder derives from the fundamental relationship of the organism to its environment. What we regard as "pathological" is simply a misfit or maladaptation between the individual and their environment. Hence, a rapid alteration of the environment, as in a disaster, leaves the individual maladapted, but does not of itself create an inherent pathological disorder. Elaborating on Bergson's theory of disorder, Canguilhem (1991, p. 194) writes,

> There is no disorder, there is the substitution for an expected or loved order of another order which either makes no difference or from which one suffers.

Bergson viewed order as a fact deriving from the relationship of our minds with the things around us: "It is the mind finding itself again in things" (Bergson quoted Angelides 2011, p. 16). So taking these points from Canguilhem and Bergson together, we propose that order is a familiar state of relationship to our environment. The disruption of that order is an environmental challenge to our mental and cognitive orientation to the world. Yet it is not disorder as a total lack of order since, in Bergson's terms, the mind immediately responds to the challenge, "finding itself again in things".

4.3. Mind and things: A collective project

How, then, is this metaphysically-tinged subject of "mind" able to respond to a radically new and unknown environment? First, we need to clarify that the role of the "mind" (or *ésprit*, or *Geist*), as we understand the term today, is not as metaphysical as it sounds. It is a collective effort to understand the new relationship of humans to the changed environment. This understanding is a dynamically developing knowledge which can be seen, in the terms of the previous section, as the outcome of institutional and social investigation and discourse. This includes scientific research, policy debate and discussion through a wide variety of media, including social media, mass media, and the arts.

This continuous process of re-conceiving, and thus re-ordering our relationship with (changed) environments is a characteristically human one, achieved collectively. However, in complex societies the term "collective" masks any number of conflicts of interest. As we saw in attempts to discredit climate science, knowledge and interpretation can be weaponised for limited short-term interests. While it's recognised that solutions to climate change and pandemics will benefit all humanity, there are short term winners and losers. Recalling Canguilhem's comment that the new order either makes no difference or causes suffering, it can be seen that some will suffer more than

others. Some may even benefit: disorder creates opportunities for looters or neo-Nazis (as noted above), as well as mainstream capitalist opportunists (Klein 2008).

Despite the frequently uttered mantra of the COVID-19 pandemic, "we're all in this together", some of us are in it more than others, to recall Orwell's *Animal Farm*. In this same vein, the public health conception of suffering has been described as "*une grandeur collective*" (Renault 2008, p. 47). Yet because suffering is *socially created*[7] the suffering of some can be inflicted by others. The increasingly unequal social, political and economic arrangements that promote differential suffering must be addressed if we are to ameliorate the worst consequences of disasters. The most damaging of these inequitable arrangements is exclusion: from social collectives, from secure or meaningful work, from universal health or welfare provisions. Valerio Nitrato Izzo has pointed out the cruelty of issuing "stay at home" orders to the homeless,[8] while the pandemic has starkly revealed the vulnerability of those in crowded housing and precarious work.

Given the central focus of this discussion on the epistemological aspects of disaster – the rapid adjustments in know-how required to cope – we need to take special note of access to or exclusion from knowledge. Recognising the social conditions of knowledge and ignorance reminds us that social groups have a variety of resources available to adapt to changed conditions. Knowledge is embedded in the different social worlds that we inhabit, to which any new information (location of a fire, transmissibility of a virus) must be adapted. To give an example from an outbreak of COVID-19 in Sydney in 2021: the top-down messaging and authoritarian policing of stay-at-home orders failed to slow the spread of the virus in the multi-cultural areas of western Sydney until the communities themselves became engaged. For instance the Sikh community arranged food deliveries, and vaccination centres were set up in the car-parks of a football club and a mosque. Infection rates came down steadily following this local engagement.[9] The knowledge that is applied to respond to disaster must arise out of various experiences, out of the know-how of diverse everyday lives. Otherwise the inequality of suffering, and the sum total of suffering, is bound to be exacerbated.

5. Conclusion

This conclusion draws on the foregoing analysis of forms of knowledge to better understand the constructive cognitive processes required to adjust our know-how in responding discursively to these new environments: for the mind to find itself again in things.

All of us work from broad organising concepts about the world, including the social world (ideologies), down to the know-how required to live our everyday lives. In complex societies there are intervening institutions, means of discourse and other social arrangements for gathering, organising and disseminating knowledge. Science is one of

[7] Canguilhem, writing in the context of medical pathology, was thinking of suffering as something subjective to the individual patient. Renault (2008) elaborates on the modes of social suffering, from shared collective suffering to forms of differential suffering, and their social causes. Further work could elaborate on the subjects of suffering to include ecosystems and even the Earth itself. Humans' empathetic suffering with that of beloved ecosystems was a deep and common reaction to the Australian fires.

[8] Verbal communication in the discussion in the first seminar of this series, 29 September 2020.

[9] This analysis arises from contemporaneous monitoring of case numbers (NSW Health) and numerous news reports (ABC News, Guardian Australia), July-September 2021.

these, which publicly reveals findings as they come to hand and are accepted by a scientific community. They are always provisional, pending more investigation, but they have the advantage of public checks and balances. Other communities also develop and preserve information, through less formal means. Where those are rootless and anonymous, e.g. social media posts, their reliability is suspect. Yet others derive from long experience and collective effort by known experts or elders. The most respected of these communities are First Nations, with countless generations of cumulative knowledge. But even a generation or two in place can build up useful knowledge of local conditions and traditions. Science and Indigenous knowledge develop out of long traditions and robust institutions to provide extensive knowledge of persistent and changing environments. This knowing includes broad organising principles, such as cosmologies, as well as quite specific facts, which mediate between the most general and the most immediate. Knowledge derives from deep traditions as well as first hand experience. It is of crucial importance from the macro level of policy decisions, down to the micro and immediate level of knowing how to survive a fire or a flood, or how to avoid spreading a virus. It has far more mundane and quotidian uses and manifestations than those of science, law and public discourse. As know-how, it is our guide and orientation to the world.

Discourse is necessary to establish shared ways of reacting to challenges. In "normal" times there are institutional and communal expectations about the knowledge needed as the basis for this discussion. Those forms of knowledge may be contested and ideological (*sensu stricto*, based in political and economic interests) and they may be established in the various discursive means of framing collective action. At the macro, society-wide level, the latter include courts and other dispute resolution mechanisms, as well as the processes of science, the media and other communication channels. There are also discursive resources for negotiating everyday life that operate in less formal collectives, from families and neighbourhoods to the social capital of civil society. Some of these normal processes are directed towards predicting or managing disaster: climate science, epidemiology, emergency services, support networks and disaster planning. Yet when disaster does strike, the contours of the known world dissolve, leaving a gap between the know-how of normal everyday life and the challenges of disruption.

The new normal of living through a disaster disrupts knowledge and discourse just as it threatens lives and livelihoods. As we've seen, there is a suspension of the expected links between taken-for-granted know-how and the radically altered environment. This mimics the *epokhè*, or suspension of the "natural attitude", that was a key method in Husserl's phenomenology. And like the *epokhè* it opens to, and even demands, a fresh look at the world.

Canguilhem, following Bergson, emphasised that challenges to normality were not in themselves disorderly. They demand adjustment to this altered environment. The shock of suspension makes us step back from the old, taken-for-granted knowledge and discourse with the promise of emerging anew into the world as it is now. Here is an opportunity to refresh our knowledge and a requirement to communicate in new ways. Neither knowing nor adjustment can be gained individually. A suspended and

reconstituted discourse is the "instrument of action" available for us to adjust in times of disaster and disruption.[10]

This reconstituted discourse relies on knowledge from various sources. We have seen the limitations of the simple dichotomies of science versus nonsense, or expertise versus ideology. In the social project of debating responses to crisis, or gaining and sharing useful new knowledge, we can build on the bases of scientific, indigenous or other traditional ways of knowing, learning and discussing. These must be integrated anew into the day-to-day know-how that communities share and rely on to survive and prosper in a new environment. There is no going back to the ways of knowing and discussing that worked before – before climate change, before the pandemic. We can only find ourselves again by revising our *savoir-vivre*, the knowledge of how to live *together*, as well as the know-how, the *savoir-faire*, required by this new reality.

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[10] "The sick person must always be judged in terms of the situation to which he is reacting and the instruments of action which the environment itself offers him. (…) There is no pathological disturbance in itself: the abnormal can only be evaluated in terms of a relationship" (Canguilhem 1991, p. 188).

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