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## There is safety in power, or power in safety

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## ABSTRACT

Power and politics are profoundly implicated in organizational accidents. Yet the safety-scientific literature remains relatively uncommitted to a research agenda that would make power a critical category in our understanding of organizational safety. This has consequences for the field's scholarship and for safety praxis. This paper reviews how power in the literature has been elided or treated as an instrumental force where views of reality compete for acceptance and dominance. Despite its recent preoccupation with "safety culture," the literature has only just started embracing power as embodied in discourse or in the legitimated procedures and organizational processes for the production and acceptance of safety. We conclude with suggestions for how such a research agenda might look.

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## 1. Introduction

This paper considers the role that safety-scientific research has given to power. It is difficult not to consider power in any serious discussion of safety. An increasingly familiar idea in safety science, after all, is that accidents and disasters are organizational or administrative in nature (Pidgeon and O'Leary, 2000; Rasmussen, 1997; Reason, 1997; Turner, 1978). Accidents are increasingly seen as failures of risk control (Beck, 1992; Giddens, 1991; Green, 2003), to the point that one journal concerned with healthcare safety banned the use of "accidents" altogether (Davis and Pless, 2001). Power is of course inherent in the life of risk-managing organizations (Gephart, 1984). It links the organization to regulators and surrounding communities (Rasmussen, 1997) and is heavily involved in the attribution of causes and processes to learn lessons from them afterward (Clarke and Perrow, 1996; Feynman, 1988; Sagan, 1993; Vaughan, 1996; Woods et al., 2010). An examination of the risk management activities by people involved in preventing (or failing to prevent) failure has become a common political, judicial and safety-scientific focus (Alaszewski and Coxon, 2008; Antonsen, 2009; Dekker, 2009; Woods, 1990), in part to ameliorate societal anxieties provoked by accidents and disasters (Beck, 1992; Fresco, 2007). This has helped legitimize the expansion of governmental and institutional control of risk (Brown, 2000; Byrne, 2002; Clarke and Perrow, 1996; Gephart, 1984; Perrow, 1984). Power, then, is implicated everywhere in safety and organizational failure,

and necessitates a "constant awareness that politics pervades organizations that manage hazardous technologies" (Sagan, 1994, p. 238).

But how has safety science dealt with power? How has it constructed the role power plays in the creation and breaking of safety? In part, safety science has not worried much about power at all. "The role of power in organizations is an issue which is rarely addressed" (Antonsen, 2009, p. 183). Pidgeon and O'Leary (2000) concluded that "the influence of such societal variables on the promotion of safety cultures are likely to be powerful, and in some circumstances may even dominate, and yet we know almost nothing about them at present" (p. 27). Eliding power in safety research, says Antonsen, sustains an unrealistically harmonious image of organizational life, one that is homogenous and free from conflict.

To begin to address this gap as one of the challenges to the foundations of our science, we try to do three things in the remainder of this paper. We first consider how safety science has been able to eschew serious consideration of power. Then we review safety literature where power is seen as an instrumental force. With more power, the possessor can do more: s/he can intervene in an ongoing process, call the shots, set organizational direction. According to this literature, there is "safety in power." It is safe for one's position, team, patient, process, and so forth, to have power. Emancipatory projects such as crew resource management training in aviation and healthcare, which attempt to redistribute decision power downward, are modeled after this idea. Second, we explore the possibility of a safety research agenda that might turn power into a more social-scientific topic. Rather than power as a possession, this considers power as a process that pervades all aspects of organizational life. In other words, there is power in safety—everywhere in safety.

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## 2. How not to worry about power

Safety science's unrealistically harmonious image of organizational life (Antonsen, 2009) may have deep epistemological roots. Safety science seems to constitute one of the last research literatures that strongly reflects Enlightenment ideas with its appeals to be both rational and pragmatic. Science, the highest expression of reason, can make the world a better place. After all, science can explain, predict, and ultimately help prevent that which we do not want—disease, disaster. It can also lead to the invention of a more just, and equal social order. Safety science aspires to be a normal or paradigmatic science, with systematic, unified production of evidence so that it can measurably affect things in the real world (Parasuraman et al., 2008). The aim of safety science, for example, is to make organizational learning possible (Catino, 2008). It wants to improve the knowledge actors have of their system and of their own context of action. It wants (and believes it is possible) to enhance the capacity of an organization or material system to obtain and elaborate clear and reliable information about what is going on inside (Rasmussen, 1997).

Safety science continues to adopt a technical and problem-solving approach consistent with theories of organizational life dominated by rational choice (Page, 2008) and regulative management (Gephart, 1984). The environment is seen as a target of managerial control, exercised through rational practices of evidence gathering and decision making. “Power” is added to this material world only as explanandum for the “cookies-and-milk” stuff that defies most engineering logic and scientific explanation (Batteau, 2001). This stance (and the practical successes it generates) allows safety science to avoid some fundamental issues about the social world. One of these is power. Social conflict and power can be finessed. Questions of access to resources and the role that power plays in them are easily ignored. Questions about capitalism or communism as social and economic systems of power distribution that produce precisely the sorts of problems safety science has to address (Wilkin, 2009) are dismissed as too vague and impractical. For example, Legasov's observation that the Chernobyl accident was the culmination of how the Soviet economy had been run for decades, or the Columbia Accident Investigation Board's conclusion (CAIB, 2003) that the Space Shuttle burn-up was linked to the post-Cold War policy and budget environment, are spurned as diluting accountability for failure (Reason, 2008). With an appeal to Anglo-Saxon individualism, autonomy and responsibility (Feldman, 2004), “power” has been legitimately constructed to fall outside the scope of safety-scientific research. We reflect on that further in the next section.

### 2.1. How a focus on the individual and human agency eschews power

Much of safety science since Turner (1978) has focused on human agency and its deficiencies, reflecting the rationalist assumptions of regulative management (Gephart, 1984). The science has found, for example, how individuals' erroneous assumptions let events go unnoticed or misunderstood, or how rigidities of human belief and perception can lead to a disregard of complaints and warning signals from outsiders. This produces judgment errors, cognitive lapses, deficient supervision and communication difficulties that safety scientific orthodoxy sees as critical in creating a discrepancy between a safe system and actual system state (Reason, 1997). As said recently (Weick and Sutcliffe, 2007):

... failure means that there was a lapse in detection. Someone somewhere did not anticipate what and how things could go wrong. Something was not caught as soon as it could have been caught (p. 93).

This is a kind of ontological alchemy which turns judgmental attributions (cognitive lapse, judgment error) into remediable statements of fact. If disasters in systems are related to failures of intelligence, or not catching things as soon as possible, then the system's intelligence should be enhanced by increasing the organization's commitment, reach and flexibility in its data infrastructure and interpretations of risk and safety. Many of safety science's solutions emerge from this, including (Hollnagel et al., 2006; Pidgeon and O'Leary, 2000):

- Senior management commitment to safety;
- Shared care and concern for hazards and a willingness to learn and understand how they impact people;
- Realistic and flexible norms and rules about hazards;
- Continual reflection on practice through monitoring, analysis and feedback systems.

What is seldom addressed here is any mention of *who* does or decides what in sharing concern, in changing norms, in committing to certain priorities or principles, in learning and providing feedback. Or *who*, for that matter, got to call something a judgment error or cognitive lapse in the first place. Catino, in the footnote of a recent literature paper, suggests that which latent organizational factors are searched for, and where the search stops, is decided by pragmatics (Catino, 2008). This finesses the question of who decides and defines what is pragmatic. For a science concerned with agency and allotting responsibility, to be silent here does seem curious. If, however, one factors in how safety science defaults to folk theory when it comes to individual autonomy and responsibility (Reason, 2008), all this begins to make sense (Dekker and Nyce, 2012).

An analysis of Space Shuttle accidents by Feldman is a good example (Feldman, 2004). At first, the analysis and its findings remain consistent with the standard safety-scientific model and other published work on those accidents (CAIB, 2003; Feynman, 1988; Jensen, 1996; Starbuck and Farjoun, 2005; Vaughan, 1996). Misunderstandings of flight risk were the systemic products of overconfidence in quantitative data, a marginalization of non-quantitative data, an insensitivity to uncertainty and loss of organization memory, of the illusion that engineering problems and solutions could be addressed independently from organizational goals. All this comfortably fits Turner's category of cognitive failures, or failures of organizational information processing, that characterize the incubation period before disaster strikes (Turner, 1978). In his conclusion, however, Feldman (2004) departed from any further consideration of institutions, power or bureaucracy. Instead, he exhorted engineers to intervene, to be better aware of what they are doing, to speak up, to not be blinded by the situation(s) in which they are involved, to be more responsible. “Engineers need intense cultivation of their professional responsibilities within organizations”, he argued (p. 713). Individuals need to work harder, be more conscientious and virtuous to overcome the limitations of their institutions. To safety science in Anglo-Saxon traditions, such valorization of individual heroism in the face of institutional hysteresis may seem natural. As does the tendency to analyze “down and in” and trace organizational failure to a few who did not speak up (Dekker, 2011a). Even the use of “safety culture”, though ostensibly a way to broaden out to more diffuse understandings of failure, can end up allocating responsibility to particular individuals or groups (Silbey, 2009):

... the endorsement of safety culture can be usefully understood as a way of encouraging and allocating responsibility ... Invoking culture as both the explanation and remedy for technological disasters obscures the different interests and power

relations enacted in complex organizations. Although it need not, talk about culture often focuses attention primarily on the low-level workers who become responsible, in the last instance, for organizational consequences, including safety... (p. 343).

Feldman continued that there should be consequences for those low-level workers who do not live up to their fiduciary responsibilities: "Engineering societies need to require engineers to act in accordance with the prevent-harm ethic. This requirement must include both training to inculcate the prevent-harm ethic and sanctions—up to losing one's license—when the ethic is violated" (p. 714). Power as institutional process does not matter—empowerment of lower-ranking individuals and reminding them of their responsibilities does. This has become canon in another part of the safety-scientific literature. We turn to that now.

### 3. There is safety in power

#### 3.1. If there is safety in power, give more power to those below

While power in the literature discussed above is at least linked to socio-economic factors (the elite's ability to remain "invisible", i.e., unchallenged), once again power is largely seen as instrumental "force". This is not surprising given safety science's intellectual pedigree, which supports the discipline's model of the social order as a mimic of the natural world and physical events in it. Where power has come into play in the safety and applied literatures, it has focused on the challenges to such power. Pidgeon and O'Leary, for example, have proposed how (Pidgeon and O'Leary, 2000) "...we may require ... legal guarantees given to 'whistleblowers' who fear the consequences of speaking openly outside an organization about safety concerns." Strategies and interventions that embody this view of power (and its use and challenge inside organizations, teams and workgroups as well) have been accepted across broad ranges of industry.

A number of remedies have emerged, e.g., the devolution of conceptualizations of risk to local, operational experts (rather than management) (Weick and Sutcliffe, 2007), calls to recognize the view from below (Berlinger, 2005), the empowerment and legitimation of organizationally less powerful groups (Hollnagel et al., 2006; Pronovost and Vohr, 2010). This has spawned a considerable literature on crew resource management and human factors training in aviation, healthcare and other industries (Dekker, 2008), though its practical effects have been questioned (Salas et al., 2006). In order to improve communication among surgical team members, for example, with the goal of improving patient safety, some hospitals are implementing programs which attempt to "level the playing field" (Helmreich, 2000; Helmreich and Foushee, 1993). The goal is to make all members of team (in particular those lower in the hierarchy) feel safe to question the activities of the attending surgeon and to convince these surgeons that such questioning is acceptable behavior (Flin and Mitchell, 2009; Pronovost and Vohr, 2010; Sexton et al., 2000). Such interventions educate and instruct individuals "to talk truth to power".

#### 3.2. Safety in power means being able to say what went wrong

There is safety in being able to say what or who went wrong—after an incident or accident, who "holds the pen?" After all, many different stories of the creation of safety and risk, and of accident causation, are always possible (Dekker, 2007a; Galison, 2000). Gephart (1984), for example, proposed in a political sense-making model of accidents to elaborate on this. While this did take power into account, it was treated largely as an instrumental force.

Divergent views of reality, said Gephart, emerge in the written and verbal statements of government, industry, and public critics involved in disasters. These views of reality compete for acceptance as the dominant reality, and generally the view that has the most powerful interests and the most resources behind it tends to win (Gephart, 1984). Using a case analysis of two environmental disasters, Gephart showed how different representations of these events emerged from those stakeholders (government, industry, public critics, media) involved, all who had had, differential power and influence.

Making conflicts of interest more visible in organizations that manage hazardous technologies was the proposal of Sagan's political theory of safety (Sagan, 1994). Narrow agendas, resource scarcity and competition, said Sagan, all serve to interfere with the organizational intelligence capabilities that can predict and avert accidents, and with organizational possibilities to learn from failure. Safety-critical information does not get recognized or shared among parties that would benefit from it, incidents and accidents get ignored, covered up or hidden, and conclusions after the more visible accidents get reconstructed so as to align with powerful socio-economic interests. Such possible effects of power were acknowledged as early as Perrow (1984):

Formal accident investigations usually start with an assumption that the operator must have failed, and if this attribution can be made, that is the end of serious inquiry. Finding that faulty designs were responsible would entail enormous shutdown and retrofitting costs; finding that management was responsible would threaten those in charge, but finding that operators were responsible preserves the system, with some soporific injunctions about better training (p. 146).

There is a lot of safety in having the power to say what happened, to be able to identify risk, to write history, to assign cause and consequences after an accident. Legitimizing both the actions and the interests of elite groups is what determines whose view of events becomes the accepted or dominant one (Brown, 2000). Cause is a political construct, and scapegoating a play of power. Examples of this abound. A fatal medication error was attributed to a nurse not long ago, who was subsequently tried and convicted of manslaughter. An ambiguous medication order that had been written (but not signed) by a doctor disappeared without a trace a few days after the death, and could never be used as exculpatory evidence (Dekker, 2007b). The exercise of power can suppress dissent, mold worldviews, and reinforce elites, which in safety work are typically white males with technical (and not infrequently juridical) backgrounds, regardless of the merits of their position vis-à-vis reality as others see it (Hacking, 1999). Even what might at first seem as lucky or chance, when back-traced, often looks at organizational power at work. Two years before the *Exxon Valdez* disaster, for example, another oil tanker (*Stuyvesant*) leaked some million gallons of oil into the Gulf of Alaska, but the oil never hit the shore and went largely unnoticed. The very existence of accidents, in other words, can be hidden, ignored, re-presented or covered up by interested parties (Sagan, 1994). Echoing Perrow, Sagan continued that:

Even when failures cannot be hidden, the interpretation of accidents and lessons favored by the most powerful actors will often take precedence. This is why so many technological accidents get blamed on the most proximate cause—human error by operators—rather than deeper causes such as faulty design or mismanagement by higher authorities (p. 237).

Manufacturers' representatives in the inquiries into two highly vexing Boeing 737 accidents, for example, insisted that the crashes were caused by pilots pushing on the wrong rudder pedal after the aircraft had inexplicably been flicked onto their backs not long

before landing. Boeing representatives made an implausible comparison with car accidents by drivers who pushed the accelerator rather than brake pedals in a panic maneuver. This, quite obviously, to “protect the narrow interests of individuals within the organization and other powerful and interested parties.” (Sagan, 1994, p. 232). It turned out that power-control units in the rudder of Boeing’s best-selling jet needed a very expensive fix, after which this sort of crash never happened again (Byrne, 2002). Catino did suggest, in the closing paragraph of his review, that “it would be useful to further investigate the institutional legitimacy of different types of inquiries” but offered no way forward for doing so (Catino, 2008). It takes, as Gephart argued (and others later too (Brown, 2000)), more than a critical analysis of discourse to make different constructions of safety visible.

So what does it mean that there is safety in power? Practice (and research) in the field of safety science has shown that:

- It is safe to be given the power to speak up. Emancipatory policies consistent with this belief have been the canon in crew resource management and human factors training in fields ranging from aviation to healthcare.
- It is safe, for one’s standing in the industry or position within an organization, to possess the power to say what happened in a particular incident or accident; to have the ability to determine the narrative, or the “truth” of the event.

As Feldman suggested, the unique fiduciary relationship in which the expert understands something that others do not, places a higher moral burden on that expert—the burden to speak up, to act in accordance with a harm prevention ethic, to explain what happened or warn about what might happen. Though Feldman took things a bit further (with sanctions for violations), his appeal is consistent with calls for the empowerment and legitimation of organizationally less powerful groups. The question is whether such a moral script can have the kind of effect its advocates claim for it (Salas et al., 2006). All of this, however, sees power as a possession. The orthodoxy largely maintained in safety science is that actors use power as an instrument of domination or coercion. Eschewing or finessing power like that weakens the kinds of analysis that safety science can carry out (Antonsen, 2009). It also limits the effectiveness of our attempts to change and intervene in organizations. We turn instead to there being power in safety—that is, as soon as safety is a topic of concern, power has already entered into the equation, both from above and below. We turn to this now, and to the research agenda that might result instead.

#### 4. There is power in safety

The emancipatory strategies about who gets to say what happened, or who gets to speak up to whom (see above) leaves the structure (and role) of power and authority unaltered. Surgical residents, for example, still have to ask for letters of recommendation from senior surgeons to move up or anywhere through the system. Any attempt to change hierarchical relations via training, teaching, and encouraging different behaviors ignores role inequality and power play in such workplaces (Dekker, 2008). Assuming that changes in communication can lead to re-structurization, i.e., new relationships of power and control, is probably naïve. If assertiveness from below is a constant theme in the safety science literature, what it has taken for granted in these seemingly emancipatory strategies is who defines below” and “above” and who sets up the game and establishes its rules as well as who largely “wins”. It can also take for granted, if not actually reinforce, the role that hierarchy and elites play in such “restorative” enterprises.

Here is one example of the type of work in safety science that can make these more subtle (less instrumental) workings of power visible. It shows how power is everywhere in safety work—not as a possession but through the workings of procedures, discourse, relationships, both up and down and laterally through and across organizations. Consider the implementation of “just cultures” in hospitals, for example (Marx, 2001). This is in part a restoration of management control over staff performance after emancipatory practices and policies increasingly blamed the system and its manager, not the worker, for failures and adverse performance outcomes (Dekker, 2009; Reason, 1997, 2008). Using such ideas, managers now get to legitimately determine whether adverse events or other performance problems are due to an occasional human error, or to more nefarious at-risk or reckless behavior. And then they can mete out appropriate consequences. The introduction of a seemingly neutral algorithm to assess employee accountability reifies the idea that hospital managers can be believed to achieve a universally right or ethical answer by following a set of rules. This of course “mutes” the role of central social mechanisms like power and social differentiation in the workplace. The “justice” of such determinations of cause and culpability has been shown to be linked to one’s location in the medical hierarchy. Non-clinical staff rates the justice of their culture less favorably than physicians, but still better than nurses rate it. Physicians overall have the most positive views of their hospitals’ reporting, feedback and accountability mechanisms. Non-clinical and nursing staff have considerably less positive views, driven by concerns about how their organizations apportion blame and denies them a voice. Indeed, there is a sustained belief that disciplinary action gets adjusted on the basis of who makes the error (Thaden et al., 2006).

##### 4.1. A research agenda for power in safety

The argument put forward here is that power is everywhere we do safety work or safety research—embodied in discourse, knowledge, agency, structure and procedure (Foucault, 1980). It can work in a “capillary” sense, i.e., it pervades even the most seemingly innocuous interactions. Nurses, for example, are not just the passive recipients of power possessed by practitioners higher up in the hierarchy. They too can deploy a vast array of strategies through which power flows—by reporting patient symptoms in a particular way and not another, by modulating the tone or urgency of particular messages to physicians so as to compel them into a particular action (including calling for back-up) (Dekker, 2012), or even by threatening to use a hospital’s incident reporting system to “rat” on a doctor who does not do what the nurse believes is the right thing to do for that patient at that time (Dekker, 2011b). One recent study used signal detection theory to show how multiple clinical decision makers, across power hierarchies and gender gaps, manipulated each others’ sensitivities to evidence and decision criteria in order to compel them to particular insights or actions that they believed were right. Thus the construction of “evidence” for intervention in obstetric medicine was heavily laced with power in ways that had very little to do with power as a possession, and more with ways of working and local interpretations of ethical imperative (Dekker, 2012). In this way, power does not just repress, limit or mask through human agency. Rather, it enables and sets the stage for all human action. The latter are legitimated procedures and organizational processes for the production and acceptance of knowledge.

What this might have us do is move away from the preoccupation with individual responsibility and the human contribution (Feldman, 2004; Reason, 2008). It is not enough to “acknowledge” the role elites and hierarchy (and, by extension, power) play in the



domains safety science has an interest in. The first move is to consider how the vocabularies, institutions and methods that characterize this domain as a science have emerged and continue to be legitimized. The second is to trace back to the very “capillaries” of what we constitute as reality and science. Power cannot be treated as just the sharp edge of the social order. It is also enacted and reinforced through the workings and embodiments of what society terms knowledge and science. As such, it defines for us the social order and how in fact we perceive, understand and continue to reproduce the natural order of things: the science we publish in this journal, for example. There is power *everywhere* in safety.

Another example of the workings of power in this way is through the “regimes of truth” that even safety science itself produces and maintains. Regimes of truth are legitimated procedures for the acquisition and (re-)production of knowledge, which often operate largely invisibly and silently in any field of inquiry (like safety science). “Safety culture,” for example, is an object constituted through such regimes of truth, which take evidence from mainly individual attitude surveys to make arguments about system-level (i.e. cultural) properties or propensities. Converting values, beliefs, and behaviors into a countable and manipulable single entity, the object of safety culture actually tends to silence conflicts and contradictions about values, and can muffle the diversity, ambiguity, and changeability of what anthropologists regard as “culture”. The safety culture literature is also heavily normative, in that it attempts to “rank” organizations according to a culture “ladder” of progress toward some cultural ideal (Westrum, 1993). Power works silently in this, yet hugely coercively, as organizations will want to achieve better rankings, and might do whatever it takes to get themselves to look better (Long, 2012; Townsend, 2013). Safety consultants, in the meantime, have a stake in the bureaucratic entrepreneurialism that this safety culture machinery offers them: by telling organizations that they have come a long way, but still have a long way to go in their “cultural journeys” they create continued demand for their services—again a way in which knowledge and power are wrapped up into each other in ways that Foucault predicted.

Through this, other images of power can be brought into view, which might reveal more about how power works hand in hand with what is seen as legitimate knowledge. There are a number of ways in which power (and extensions like the notion of hierarchy and the role of elite(s) play in safe agenda) can be more firmly integrated into safety science. Social scientists have long looked at the interaction between power, hierarchy and organization form in modern complex society. There is precedent to do work of this kind in relation to safety. Research on the elite and power poses some unique challenges, like informant access. This topic is too important to neglect, however, because it does allow us to get closer to how and why things “happen” the way they do in Western society and institutions.

What this might end up showing is that safety praxis tends to default to individual operators at the sharp end not because other actors wish to be protected from blame (and have the power to do so), but because the presumed regulative activities associated with risk management, and their causal connections to any negative outcome, are simply easier to demonstrate the closer one comes in space and time to the actions or omissions that triggered the problem. Human error becomes the scapegoat not because of power as coercive instrument, but because of power enacted and expected through the capillary workings and embodiments and expressions of knowledge. A research agenda modeled on this realization might better capture the workings of power than we have before.

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