

The Regulation and Management of Workplace Health and Safety

Historical and Emerging Trends

Edited by
Peter Sheldon, Sarah Gregson,
Russell D. Lansbury, and
Karin Sanders

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The book provides a collection of cutting-edge, multidisciplinary research-based chapters on work, workers and the regulation and management of workplace health and safety. Featuring research from Australia, Europe and North America, the chapters traverse important historical examples and place important, emerging contemporary trends, like work in the gig economy, into wider international and historical perspectives. The authors are leading authorities in their fields.

The book contributes to advancing our knowledge – empirical and theoretical – of the ways in which labour market dynamics, management strategies, state regulation and public policy, and union organisation affect outcomes for workers. It features in-depth exploration of, and reflection on, some of the major labour market challenges facing workers, and analysis of strengths and weaknesses of responses to those challenges, whether via management, state regulation or collective employee voice. The chapters highlight shifts in (in)equality of outcomes, access to security and flexibility at work, genuine access to workplace voice and decision-making, and the implications of different avenues and mechanisms for regulating work and employment.

The text is aimed at researchers, undergraduate and postgraduate students in work and organisational studies, industrial/employment relations and human resource management, workplace (or occupational) health and safety, employment law and labour history. It will also be of particular interest to policymakers and practitioners working in the field of workplace health and safety.

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3 The West Gate Bridge Collapse

How Disaster Happens

Sarah Gregson and Elizabeth Humphrys

Introduction

When a section of the West Gate Bridge collapsed during construction, killing 35 employees, it became and remains Australia's worst industrial disaster outside of mining. The tragedy received significant media coverage at the time, a Royal Commission was established to determine 'the circumstances surrounding and the cause or causes direct and indirect' of the collapse, and there has since been significant analysis of the bridge's engineering flaws (Biezma and Schanack, 2007; Charrett, 2008; Coles and Gourley, 2003; NCE Editorial, 2010). However, the political, social, industrial relations (IR), and occupational health and safety (OSH) implications of the collapse warrant further scholarly analysis. Moreover, the findings of the 1971 Royal Commission Report [hereafter RCR] have never been subjected to critical sociological assessment and, decades after release, remain the accepted wisdom (Barber et al., 1971). While the RCR did identify a range of factors that contributed to the tragedy, we argue that responsibility was dispersed too widely. This diluted criticism of those employers with the most significant duty of care and neglected the question of regulatory failure. By revisiting the Royal Commission findings, we shed light on the collapse's contemporary lessons — including the dangers of organisational division on building sites and the significance of worker voice in OSH discussions. As Hayes (2011: 23) suggests, studies of decision-making in hazardous industries demonstrate the utility of continued reminders about past tragedies for workplace incident prevention. Further, they underscore the dangers inherent in corporate fragmentation, organisational pressures, and cost-cutting — all issues of profound ongoing relevance (Quinlan, 2014; Weil, 2014).

In this chapter, we use Michael Quinlan's 'ten pathways' framework to subject evidence about the West Gate Bridge disaster to analytical scrutiny (Quinlan, 2014). The pathways Quinlan identifies provide a rigorous scaffold for probing industrial death and injury through identification of contributory factors commonly found, such as: (1) engineering, design, and maintenance flaws; (2) failure to heed warning signs;

(3) flaws in risk assessment; (4) flaws in management systems; (5) flaws in system auditing; (6) economic or reward pressures compromising safety; (7) failures in regulatory oversight; (8) worker or supervisor concerns that were ignored; (9) poor management-worker communication and trust; and (10) flaws in emergency and rescue procedures. Through an extensive examination of mining disasters between 1992 and 2010 across Australia, Britain, Canada, New Zealand, and the United States, Quinlan (2014: 31–33) identifies these ten systemic failures because they so frequently recur in post-disaster analyses. Moreover, by highlighting the notion that ‘errors’ cannot be fully equated with ‘failures’ and ‘flaws’ in work systems, his study is a necessary corrective to investigations that search for individual scapegoats and ‘unforeseeable’ triggers of tragedy.

We, too, highlight the political, organisational, and economic pressures that led to the West Gate collapse to see if these pathways can be identified in a non-mining context. We wanted to know whether the West Gate collapse could be explained by the ‘pathways’ approach and, if so, how many of the pathways were applicable to this disaster. We relied heavily on the transcript and final report of the West Gate Royal Commission to provide material evidence about the causes of the collapse, but our purpose was to subject the conclusions drawn from these documents to critical analysis. Although royal commission investigations have the capacity to be extraordinarily revelatory — in this case, the Commission had powers to call witnesses and require production of documents, and both commissioners and company legal representatives were able to cross examine witnesses — these documents are also evidence of interpretive flaws in the investigative process. In particular, we raise potential judicial bias, selective and limited terms of reference, and failure to facilitate legal representation of union perspectives as problematic factors.

From here, the chapter is organised into three further sections. The first of these details the story of the collapse and the ensuing Royal Commission investigation. Next, there is a brief review of literature pertaining to disaster analysis and worker safety. In the following section, we apply evidence primarily sourced from the Royal Commission investigation to each of Quinlan’s pathways to demonstrate the comprehensive applicability of this framework to the West Gate disaster. In addition, in this section, we have also included evidence to suggest flaws in the investigative process and subsequent conclusions. Far fewer commentators have read the Royal Commission transcripts than have relied upon the final report, meaning that the biases contained in the Commissioners’ sometimes selective interpretations of witnesses’ testimony have gained an air of orthodoxy through accessibility and repetition. We conclude that some of the evidence in the transcripts can be interpreted in ways different from those of the Commissioners.

The Collapse

By the 1960s, the idea of a road link across the Yarra River in Melbourne had gained momentum as a much-needed infrastructure project for the city's development (Hitchings, 1979: 6–12). Unable to finance the project, the Victorian State government formed the Lower Yarra Crossing Authority [hereafter the LYCA or the Authority], comprising a consortium of businessmen who had been lobbying for improved road transport links between their Western-based establishments and other parts of the city (Royal Commission Transcript [hereafter RCT], 1: 14–17).¹ With all the imprimatur of a government department, if not a corresponding sense of public service, the Authority was vested with sufficient powers to attract finance, issue contracts, supervise construction, acquire land, and operate a toll bridge upon completion (Charrett, 2009). The LYCA appointed two consulting engineer firms to oversee the project — Melbourne-based Maunsell and Partners [hereafter Maunsells] and London-based Freeman Fox and Partners [hereafter Freeman Fox] — both leading design and construction companies. Maunsells undertook the administrative work and Freeman Fox designed the bridge and oversaw technical matters. Maunsells then engaged a number of contractors to complete elements of the overall construction, the most significant being John Holland Constructions [hereafter Hollands] for concreting work and World Services for steel work. Construction began on both sides of the river in early 1968, and the foundations were completed in September 1969 without significant problems. By the end of 1969, however, World Services had fallen well behind schedule on the western side and its contract was terminated by the LYCA. Hollands assumed responsibility for World Services' work, although its personnel had little experience in steel erection. World Services agreed to provide technical advice to Hollands staff to address this gap (RCT, 1: 24).

Blame for delays was contested; while key LYCA, Maunsells, World Services, and Freeman Fox personnel maintained industrial action was the culprit, some evidence suggested that World Services was using labour problems as an excuse (RCT, 9: 2268). West Gate workers were highly organised into seven unions.² Through regular site meetings, industrial action was initiated over matters like pay, conditions, union rights, and employer disciplinary strategies — for example, downing tools until a sacked workmate was reinstated. On several occasions, workers took industrial action about workplace safety, and some delegates tried to form a safety committee, but Hollands management was reluctant to participate.

In June 1970, a Freeman Fox-designed box girder bridge in Milford Haven in Wales collapsed while under construction, killing four workers. In the aftermath, unions on the West Gate site sought assurances that the unfinished structure was safe and Freeman Fox's resident engineer,

Jack Hindshaw, addressed a combined union meeting to ease concerns. He rested his reputation on the bridge's safety and, on hearing this, the workers voted to return to work. Joining the two sides of the bridge, however, did not proceed as smoothly as anticipated. Workers manoeuvring half girders into place on the western side were frustrated by a significant difference in camber. Engineers decided to place seven concrete blocks ('kentledge'), each weighing eight tonnes, on one girder to pressure it into place, but this manoeuvre instead caused a bulge in the bridge structure. Early on 15 October 1970, west-side engineer David Ward ordered the removal of 30 bolts in an attempt to flatten the bulge. At 11.50 a.m., the structure could no longer bear the stress — witnesses said the steel turned blue, bolts snapped like gunfire, and the entire span between piers 10 and 11 collapsed (Coles and Gourley, 2003: 7–8). Thirty-three men perished in the fall, 18 were hospitalised, and two of those men later died. As a result, twenty-eight women became widows and 88 children lost their father.³

Two investigative processes were initiated. First, State Coroner Harry Pascoe visited the scene immediately and formed a committee of inquiry. The committee consisted of engineering and scientific experts, drawn from construction firms, academia, and government. Second, Mr Justice Barber from the Victorian Supreme Court was appointed to head a Royal Commission, alongside two other Commissioners — Frank Bull, an Adelaide professor of civil engineering, and Sir Hubert Shirley-Smith, a British bridge expert who had been a witness on the Milford Haven inquiry. With state police, the Coroner collected surviving documentation and interviewed witnesses, searching for contributory factors. The Committee's evidence and technical report proved vital for the Royal Commission, but the Coroner waited for the Royal Commission findings before adopting them in his own report (Pascoe, 1973; RCR, 1971: 10).

The Commissioners attributed blame to 'the acts and omissions of those entrusted with building a bridge of a new and highly sophisticated design' (RCR, 1971: 97). They said it was

...mistakes, miscalculations, errors of judgment, failure of communication and sheer inefficiency. In greater or lesser degree, the Authority itself, the designers, the contractors, even the labour engaged in the work, must all take some part of the blame. Error begat error, and the events which led to the disaster moved with the inevitability of a Greek tragedy.

(RCR, 1971: 97)

Because evidence suggested that the engineers had been very concerned about the implications of the Milford Haven collapse, the Commissioners characterised their assurances that the West Gate structure was safe as 'improper' and a disingenuous 'breach of their duty', used to 'pacify and allay the suspicions of the labour unions and their members, on the matter

of working safety' (RCR, 1971: 101). They found that the project had been inadequately supervised and decisions based on incorrect stress calculations (RCR, 1971: 102). The Commissioners levelled the heaviest criticism at Freeman Fox, listing haphazard communications, inadequate oversight, and poor decision-making as critical. 'For all the above reasons', they concluded, 'we are compelled to conclude that Freeman Fox bear a heavy burden of responsibility for the failure of the bridge' (RCR, 1971: 104–105).

The Commissioners also labelled some steps taken by the project's unionised workers as 'industrial sabotage', concluding that delays caused by workplace strife, absenteeism, and inclement weather had weakened the bridge's structure. Their predispositions were clear:

The action of the trade unions and the men and [Hollands'] failure properly to control the labour retarded the work and undoubtedly contributed to the weakness of the span at the relevant time and so to the ultimate collapse. It is widely accepted that the essential requirements for good labour relations are mutual trust, confidence and respect as between management, trade unions and men. Once this relationship is established, all concerned will work as a team and first-class production can be achieved. Without it, little if any progress can be made. By their actions in compelling [Hollands] to engage men in whom they had no confidence and to run the job in a manner not of [Hollands'] choosing, the trade unions and men must accept their share of responsibility for the tragedy that ensued.

(RCR, 1971: 96)

The Commissioners' conclusions suggest that, had the workers obeyed management's orders, the bridge would have been completed safely. Using Quinlan's ten pathways analysis in combination with the same testimony available to the Commissioners, we question whether this was a credible conclusion to draw from the available evidence.

Analysing Disasters and Safety

A political economy approach to OSH identifies that disasters, and safety incidents more generally, occur within broader capitalist structures. Quinlan adopts a three-pronged political economy approach in which the social relations of capitalism

- 1 affect the 'form and scope (including work safety, labour and social protection legislation) of safety';
- 2 influence 'enforcement by the regulator or inspectorate, judiciary, coronial and other investigative bodies'; and
- 3 shape 'levels of influence businesses, unions and other interest groups can exert on governments' (Quinlan, 2014: 24).

Capitalist social relations include ‘the distribution of wealth and power within societies, and dominant social policy paradigms that privilege markets and profit, production or economic growth over safety’ (Quinlan, 2014: 24). This approach challenges OSH approaches that assume employers, employees, and governments have shared safety concerns, can safely self-regulate, and will adopt participative practices that promote safe outcomes (Robens Committee, 1972).

In this chapter, we discuss how workplace conflict over safety might be obscured or misconstrued to downplay worker concerns. In Australia, this is borne out, for example, in the traditional separation of IR and OSH legislative regimes. Employer groups often resist any blurring of regulatory boundaries between IR and OSH regimes, insinuating that unions use OSH concerns to further other industrial claims (Gregson et al., 2015). Unsurprisingly, this separation has largely benefited employers. This is because legislative provisions and enforcement mechanisms have never been sufficient to constrain managerial prioritisation of production schedules and, in that type of industrial environment, workplace action against unsafe conditions has been sporadic (Creighton and Rozen, 2017: 20–22). We argue, therefore, that a political economy approach offers a compelling contextualisation of the West Gate disaster and the Royal Commission investigation and findings.

Recent scholarly attention to workplace disaster has challenged longstanding and misleading notions that most cataclysmic events occur by chance, accidental human error, or some combination of both, and can be characterised as ‘largely unavoidable byproduct[s] of capitalist production’ (Bittle and Lippel, 2013: 2). Our arguments are based on a paradigm that workplace disasters are ‘caused’ and that, while individual actions and decisions may play a role, contextual factors offer more profound insights. Accurately analysing the causes of disaster is fundamental to the pursuit of improved protective regulation, more targeted oversight, and, ultimately, reduction in or prevention of future workplace injury and death. All too often, political action takes place only after large workplace tragedies have occurred and where corrective steps are constrained by financial considerations (Berger, 1999). Indeed, the West Gate disaster highlights the longevity of these class-based struggles by employers, insurers, and the state to avoid the financial costs of workplace safety. In the immediate aftermath of a disaster, the failure to accurately attribute blame to those most responsible assists these parties to escape appropriate reparations and punishment. Moreover, as Johnstone’s (2003) work (as well as his Chapter 8 in this book) has highlighted, prosecutions and penalties are rarely sufficiently punitive to provide reliable incentives for safe practices.

Many researchers have pointed to managerial tendencies to cut corners by restricting resources available for workplace and public safety (see, for example, Taylor and Connelly, 2009). While the managerial

strategies, ideologies, and academic fashions around the employment relationship may change over time, the productive and financial pressures at the heart of capitalism produce continuities. A range of ubiquitous factors establish preconditions for compromised safety outcomes, including incentive payments that reward work intensification and ‘speed ups’ (Gregson et al., 2015; Hopkins, 2010); cost-cutting agendas that lead to ‘fissured workplaces’ (Johnstone and Stewart, 2015; Weil, 2014); weaknesses in managerial oversight and assessment (Hopkins, 2006); blurring of organisational boundaries and responsibilities (Woolfson, 2004); regulatory ‘degradation’ (Gunningham, 2012; Tombs and Whyte, 2013); and attacks on worker voice (Robinson and Smallman, 2013). Since the Robens Report (1972) in the UK, it has been uncontroversial to say that worker involvement in OSH is integral to safe outcomes. While workers can use their workplace knowledge to monitor and, at times, refuse dangerous work, meaningful worker input is rarely effective if workplace structures and cultures do not facilitate constructive responses to workers’ concerns (Hopkins, 2006). Nor are knowledge and power equally distributed in any workplace (Bohle and Quinlan, 2000: 265). On a construction site, where many engineering decisions are made autonomously, something akin to the ‘medical dominance’ enjoyed by doctors (Willis, 1983, 2006) is vested in university-qualified site managers. Even with a high level of workplace organisation, the ability of building workers to question authority may be limited by disparities of expertise.

Quinlan’s ‘ten pathways’ highlight pattern causes of disaster that arise repeatedly in post-disaster investigations. Although these pathways have not been explicitly tested outside the mining context, Quinlan (2014: 143) argues that a familiar ‘pervasive pattern of flaws across diverse industries’ is present in other researchers’ work. Our research on the West Gate collapse was designed to test the applicability of this framework. While the engineering problems have been well documented — an unusual erection method, inadequate stress calculations and allowances, and problematic decision-making — we argue that the organisational and management failures highlighted by the ‘pathways’ can more fully address why the design and construction problems went undetected, or were ignored and allowed to fester. While the actions and omissions of engineering personnel that precipitated the disaster suggest that some engineers failed to recognise dangers, an approach that focuses on individual fault — like the Coroner’s consideration of whether victims caused their own deaths — can obscure wider contextual factors.

In this study, in order to assess the historical and contemporary value of the West Gate Royal Commission’s findings, we also scrutinise the level of independence of its commissioners, the potential for bias, and the extent to which their findings aligned with witnesses’ testimony. In particular, we question whether unionised workers’ pursuit of their

industrial interests can ever be responsible for a disaster of such magnitude. We conclude that, apart from its contribution to the historical record and allaying public anger about official inaction, in the absence of criminal charges against those responsible, the substantive benefits achieved by the Royal Commission were few.

Ten Pathways to the West Gate Disaster

To facilitate our analysis, we grouped the ten pathways listed above into four key themes, thereby reducing overlap and assisting concision and analytical clarity. For example, in the West Gate case, management failures to heed warning signs were also failures of communication and trust in some respects. In grouping the pathways in this manner, we can more clearly delineate failures within the construction project's complex route to disaster. Our themes are:

Design and project management failures — (1) engineering, design and maintenance flaws; (3) flaws in risk assessment; (4) flaws in management systems; (5) flaws in system auditing.

Communication failures and failures to act — (2) failure to heed warning signs; (8) worker or supervisor concerns that were ignored; (9) poor management-worker communication and trust.

Failure of government and incident response — (7) failures in regulatory oversight; (10) flaws in emergency and rescue procedures.

Economic pressures — (6) Economic or reward pressures compromising safety.

Design and Project Management Failures

The West Gate disaster involved clear evidence of *engineering and design flaws*, including related *flaws in risk assessment, management systems, and auditing*. Coles and Gourley (2003: 15–16) delineated seven direct causes of the disaster related to design, erection methods, and management oversight. These causes were (i) the decision to remove bolts to address the buckle, (ii) the use of kentledge, (iii) unusual steelwork erection procedures and failure to supervise it adequately, (iv) errors in arithmetic and engineering, (v) inadequate attention to structural stresses, (vi) a low safety factor during erection, and (vii) unsatisfactory design of component parts. The Coroner concluded that Freeman Fox's failure 'to give proper and careful evaluations to design' and the neglect of safe erection procedures were key, especially when the design 'required greater than usual care to be exercised' (Pascoe, 1973: 3). Thus when Commissioner Sir Hubert Shirley-Smith asked Sir Gilbert Roberts, the bridge designer, 'Do you agree that engineers have, in the past, learnt more by their failures and disasters than successes ... ?' Roberts begrudged the

‘atmosphere of caution’ and ‘unnecessary’ safety measures taken after the Milford Haven collapse. When Sir Hubert reminded him that men’s lives depended on safe construction practices, Roberts reiterated that excessive caution ‘sets back the practice’ (RCT, 6: 2151–2152).

Management systems on the West Gate project were extremely fragmented by corporate schisms, distance, lack of role clarity, and unworkable chains of command. Nor were the responsibilities of, and the relationships between, the parties clear (Charrett, 2008; 2009; RCR, 1971: 98). When Hollands agreed to take over from World Services to complete the erection work, it involved an unusual contractual arrangement — reflecting the advanced stage of the work and the company’s inexperience with steel bridge work. Hollands’ contract with the LYCA relieved the company of any responsibility for future construction problems that would have fallen under its remit in normal circumstances. Although not supportive of these contracting changes, Freeman Fox undertook to provide calculations and extra supervisory personnel to complete the project and, as the acknowledged experts, World Services agreed to provide on-the-ground support to Hollands. Maunsells London clarified the arrangement between the parties in a letter to the LYCA in July 1970:

The present arrangement with Hollands, for better or worse, is what amounts to a labour-supply contract without contractual responsibility for the erection procedure. The responsibility for deciding how to complete any gaps in the erection scheme, and indeed for all technical decision [sic] of consequence, now falls upon the Joint Engineers acting on behalf of the Authority.

(RCT, 1: 255/2)

This arrangement troubled Freeman Fox resident engineer, Jack Hindshaw, who felt placed in an invidious position; although he was nominally in charge of the project, Hollands’ staff had better relations with World Services personnel and often deferred to their engineers’ instructions and ignored Hindshaw’s concerns.

To worsen matters, evidence from Cecil Wilson, LYCA general manager, indicated that the Authority, and indeed all parties, had lost confidence in Freeman Fox’s role as consulting engineers and sought external ‘special advisers’ on technical matters ‘in order to ensure that our consultants are doing the right thing’ (Hitchings, 1979: 20; RCT, 1: 283). Queries from the Authority, Hindshaw, Hollands, and World Services to Freeman Fox in London went unanswered for months. Of the relationships between Melbourne and London, the Commission chairman noted ‘too many things seem to happen with nobody being specifically responsible ... which partner is responsible for this or that’

(RCT, 7: 2462). For this reason, he said, ‘One has a good deal of sympathy for Hindshaw out here in Australia not really knowing where he stands, asking for guidance and, as far as I can see, not getting it in writing’ (RCT, 7: 2466–2467).

The Commissioners argued that the LYCA placed too much emphasis on completion delay without proper *risk assessment* and pondered whether completion timeframes imposed on the parties had been too tight. They described an ‘atmosphere of urgency’ that led to ‘ill-considered decisions’, ‘mistakes’, and ‘hasty actions’ (RCR, 1971: 98). The Commissioners criticised all the other parties but concluded that ‘justice to them requires us to state unequivocally that the great part of the blame must be attributed to [Freeman Fox]’ (RCR, 1971: 105). Even while negotiations between the LYCA and Hollands were taking place about the latter taking over the World Services work, the Commissioners found that ‘the Authority had already entertained serious doubts as to the safety of the bridge design, and particularly as to adequacy of the structure during the process of erection’ but did not relax its completion pressures (RCR, 1971: 98). After the Milford Haven collapse, the Authority ordered an independent audit of the design and employed Maunsells in London for the work. An interim report received in September 1970 raised concerns about the structural stresses and a stop work order was sent, suggesting further stiffening works were required (RCT, 4: 1378–1379). Freeman Fox engineer, David Ward, attested to being aware of the order but said work did not stop on the west side (RCT, 4: 1173). Management decisions to prioritise completion over safety showed disregard for the risks they took with the bridge’s construction integrity and workers’ lives.

Communication Failures and Failures to Act

Although Maunsells and Freeman Fox were global players in large construction projects, communication between the London-based head offices and the Australian building site was often slow and superficial and *failures to heed warning signs* occurred at many junctures. As the above example suggests, the poor management of the project included devastating instances of *communication failures* between contracted parties and the LYCA prior to the collapse, and a failure to ensure appropriate oversight of contractual work by the engineering consultants. In addition, there were occasions when *worker or supervisor concerns were ignored*, so that construction could continue. Coroner Harry Pascoe identified both management processes and communication issues on site:

I was surprised at the lack of co-ordination and the lack of support in the higher echelons. ... They all had secrets. They wouldn’t get together and talk about how to do something, or feared they would

give away their ideas and somebody else would cash in on it. ...
Everybody was trying to give the impression of efficiency and happiness at doing the job.

(Egan, 1990: 10)

Freeman Fox design engineer, Peter Crossley, clearly recognised that the structure was under great stress but had insufficient capacity to do accurate calculations himself, or to make his superiors aware of the seriousness of the situation. The Coroner and the Commissioners both noted that Hindshaw was unenthusiastic about the use of kentledge to address the western side buckle but did not use his position power to follow another course of action — an illustration of worsening communication problems between consultants and contractors. Indeed, Hindshaw had written three times to Hollands engineers, asking them to direct the men to follow procedures as laid down. Hollands general manager Trevor Nixon's reply suggested he thought Hindshaw was blowing matters out of proportion, but Hindshaw was not mollified, threatening to issue a stop work if the matter was not addressed (RCT, 1: 156B).

When workers heard that the Milford Haven Bridge had collapsed, the unions made formal OSH inquiries and a meeting of management and workers was held. Hindshaw's assurances that the bridge was safe convinced a two-thirds majority vote of workers to return to work. Tommy Watson and Pat Preston, both West Gate survivors and union delegates, confirmed the considerable influence Hindshaw's assurances, as an experienced engineer, had on workers (Panel of West Gate Workers, 23 November 2018). This was not, however, evidence of good *communication and trust* about OSH. On the contrary, there was what Berger (1999) termed 'a mumbling environment' where workers tried to raise concerns with management, got inadequate or denialist responses, and went back to work for lack of alternatives.

In addition, the Coroner noted that Maunsells and Freeman Fox cooperated 'in allaying the suspicions of labour unions and their members on matters of safety by expressions of assurances which were made without any proper foundation' (Pascoe, 1973: 4). Indeed, in a revealing telex from the Melbourne-based joint consulting engineers to Freeman Fox in London, Geoff Fernie wrote, 'Please consider alternatives for stiffening splices e.g. the concrete implications of proposals very severe on labour, authority' (RCT, 8: 2797). Fernie admitted that, having reassured the workers of the structure's safety, to commence a stiffening program would have been 'embarrassing'. For their part, West Gate workers did a lot more than 'mumble' about safety issues on the bridge, but evasion and buck-passing were management's response. In the wake of the Milford Haven collapse, Maunsells engineer Howard James said the engineers were playing 'a very dangerous game' to reassure workers when there were doubts about the 'screwy' erection methods. '[Y]ou

could not go to the Union and say, “You must work on Sunday or Saturday afternoon or whatever because the structure [is] unsafe” (RCT, 4: 1442). He told the Commission that a structure should be safe at all times during construction and production pressures were no excuse for ignoring safety concerns.

On the morning of the collapse, one engineer, William Tracey, expressed disquiet about the removal of bolts. The Coroner noted that ‘his doubts were apparently so grave that he insisted on written instructions from David Ward, the section engineer who had assumed responsibility for their removal’ (Pascoe, 1973: 5). No serious blame was attributed to Tracey, as he had little previous experience in steel erection and simply fell in line ‘with what amounted to a direct order from the engineers in a field which was within their province’ (Pascoe, 1973: 5). The workers who removed the bolts were concerned about these directions. Edwin Halsall testified that he half-joked to tradesman, Barney Butters, ‘Don’t take any more bolts out, Barney, it’s going to fall down’ (RCT, 3: 871). Mr Halsall said Butters did not reply, but ‘put his hand up and pointed towards Mr Miller’ (RCT, 3: 882). Halsall confirmed that workers must always defer to the engineers on matters requiring expertise (RCT, 3: 887A). Des Gibson told the Commission of a conversation between Miller and Butters, where Butters told Miller that the bolt removal would be better done in the cool of the evening (RCT, 3: 908); instead it was done in the middle of the day.

Despite the West Gate unionists’ industrial militancy, workplace organisation around OSH was at a nascent stage. *Management-worker communication* was poor, and attempts by the unions to develop safety systems were ignored or undermined. A Hollands employee, Thomas Greenwood, gave evidence that attempts to set up a safety committee had not received management support. Greenwood said, ‘They were of the opinion that once a Safety Officer got on the job, all he would do all day would be to walk up and down and look for faults’ (RCT, 3: 763). That said, in order to demonstrate the disruptive militancy of the unions, in their final report, the Commissioners included a list of industrial stoppages that took place between mid-April and mid-August 1970. The list was revelatory, but perhaps not in the way intended. Of 21 disputes, the majority were about OSH — provision of first-aid personnel, working in the rain, unclean toilets, opposition to night shift, and demarcation and overtime disputes that had OSH elements (RCR, 1971: 121). Overall, the extent of industrial disputation on site indicated there was little *trust* between the parties and, to the extent that workers did trust engineers’ expertise, it was tragically misplaced.

Failure of Regulatory and Incident Response

The apparent dearth of *external regulatory oversight* on the West Gate project did not receive sufficient attention during the Royal Commission

investigation. The Country Roads Board of Victoria (CRB) was the government authority responsible for construction and maintenance, standard-setting, and inspection of main roads in this period. Plans and procedures for the project were submitted to it for approval, but the inquiry revealed little evidence of an onsite presence at the West Gate (RCT, 7: 2548). Bridge designer, Sir Gilbert Roberts, was asked by Commissioners whether a standard or code applied to bridge design and Roberts replied that such regulations were 'not necessary'. Dismissing the importance of national standards, he said, 'a designer must have his own code of conduct' and 'design rules' (RCT, 6: 1928). Solicitor-General Tony Murray asked Dr William Brown, a Freeman Fox partner, 'Are we to take it that Freeman Fox considered that from time to time even though the design is generally in accordance with [a regulatory code] they can depart from it?' Brown replied, 'Yes, if we felt it was in the interest of our client to do so' (RCT, 6: 2250).

The pseudo-governmental status of the LYCA was problematic; its operations were largely self-regulated and it had engaged former expert public servants and academic engineers as an in-house inspectorate (RCT, 1: 281–282). Cecil Wilson had been employed by the CRB before he became the LYCA's general manager (Hitchings, 1979: 20). Formerly a senior metallurgist at the State Electricity Commission, Ian Shugg became the Authority's 'independent' specialist consultant on metallurgical issues, such as the supply of steel and welding procedures (RCT, 2: 243). The joint consulting engineers also hired 'inspectors' who oversaw various aspects of the construction, such as welding and concreting. One of them, Ernest Enness, was not an engineer and had no independent authority; he reported to Chris Simpson, the east-side Freeman Fox engineer. On one occasion Enness told Hindshaw that if he had his way, 'I would make them take the whole of the diaphragms out and start again'. In reply, Hindshaw reportedly said, 'I do not think we need to be as drastic as that' (RCT, 2: 456–457). Enness also testified that he opposed Ward's decision to remove the bolts but did not raise objections at the time. When asked whether it had not been his place to advise engineers, he agreed but later regretted his silence (RCT, 2: 459). Enness had a material interest in not making enemies on site — he had already secured a position with the LYCA as maintenance supervisor on the completed bridge (RCT, 2: 459).

Peter Mackian, a boilermaker, attested that he saw the inspectors on a daily basis 'patrolling around the job'. Asked if they ever commented on work quality, he said, 'I do not think they ever complained'. Nor had he ever been asked to redo work because an inspector wanted a problem addressed (RCT, 3: 750). Although labelled 'independent', the employer of these inspectors was also the customer on this project. In evidence, Wilson professed he had held expert concerns about the bridge's safety and had expressed them to site engineers. His LYCA position, however,

fatally compromised any standard-setting role he may have adopted, particularly as he was always urging speed. That said, when ‘jokes’ were made about covering up the bulge until it could be fixed, it was from Wilson that the engineers were most concerned to hide the problem. Boilermaker Max Adams testified both Tracey and Ward had told him at different times to ‘throw a bag’ over the bulge so that Wilson would not see it. Adams had not taken the suggestion seriously and never saw the bulge covered (RCT, 3: 927). Rather, it had become something of a ‘shared joke’ among the engineers, he felt (RCT, 3: 932).

In stark contrast, we found no public criticism of the state’s rescue response to the West Gate tragedy — indeed, it appeared initially that *flaws in emergency and rescue procedures* might be the only pathway to disaster identified in Quinlan’s work that was inapplicable in the West Gate case. Emergency services responded quickly and there was fervent cooperation between rescue workers, survivors of the collapse, and social welfare personnel who provided assistance at the scene (Wilson, 1970). In newspaper stories, several survivors were praised for their dedication and heroism (Anon, 1970b). The Coroner agreed, stating that ‘all that was humanly possible to save and mitigate the suffering of the injured, was undoubtedly done’ (Pascoe, 1973).⁴ However, there is evidence that what is now called post-traumatic stress disorder was prevalent among survivors, including those who participated in rescue operations. Tommy Watson, a survivor, described two sources of psychological distress he both experienced and witnessed. First, all the workers were laid off a few days after the collapse, fragmenting social support, especially for the single men. From his perspective, ‘There was no counselling, there was no support. Nobody ever came and seen me ... 400 people walking around like zombies ... and there was no support’ (Tommy Watson interview, 2018). Second, Mr Watson argued that because rescue workers were unfamiliar with building equipment, uninjured survivors stayed on site to recover bodies of dead workmates (Panel of West Gate Workers, 2018). He was convinced that this increased the trauma experienced by survivors and, for him, the list of collapse victims might equally have included many of the rescue workers. The equally devastating experiences of victims’ families, co-workers, and friends will be discussed in future publications.

Economic Pressures

Economic or reward pressures compromising safety played a crucial role in shaping management decisions. According to Coles and Gourley (2003: 5), adherence to project timeframes was critical for the LYCA, due to the high interest it faced on borrowings. As a highly visible symbol of government performance, the LYCA was determined that ‘detailed designs must be rapidly prepared’ so that the tender process could be expedited (Coles and Gourley, 2003: 5). In evidence, Gerit Hardenberg,

a senior civil engineer with World Services, attested that the company was always aware that falling behind the schedule was problematic, not least because there were significant financial penalty clauses in their contract for failure to meet deadlines. ‘We had constant pressure from Mr Birkett [LYCA] primarily to hasten on’, Hardenberg said. ‘He was quite naturally, from his point of view, pushing us, because of the delay’ (RCT, 2: 549).

One criticism of World Services delays was that management skimmed on employing sufficient staff, especially supervisory staff, to complete the job efficiently, a failure also blamed for the high level of industrial action. The Commission received documents demonstrating that the World Services tender for the project was \$750,000 below the next cheapest bid, a massive difference in the 1960s (RCT, 1: 255-3), which suggested the company had underestimated the budget required (RCT, 7: 2508–2509). In turn, World Services management said the delays could be attributed almost entirely to union-led disruptions. In one engineer’s diary, it was noted, ‘Schroeder said it was all the fault of the labour. Apart from that they would have been right up to date’ (RCT, 7: 2551). While most managers thought this was one factor among others, one gave evidence that productivity would have improved if there had been more site engineers employed to give detailed instructions and schedules to work teams so that there was less need for questions (RCT, 8: 2817). In response, the Commission Chairman quipped smugly, ‘Satan finds some mischief still for idle hands’ (RCT, 8: 2820).

Labour shortages continued to stalk the project after Hollands took over the erection work, and several Commission witnesses argued that the company was not active enough in its recruitment to keep the job on schedule (RCT, 8: 2852–2853). Employers were also reluctant to hire 22 union militants left behind by World Services. Joint Consulting Engineer, Howard James, said ‘Well, the principal difficulty here was that it was no good advertising for men at this time because we knew there were a number of unsatisfactory men on the market and we did not want to gather them in’. Hollands’ strategy was to wait and pick up ‘good men’ from World Services when their fabrication contract ran down (RCT, 8: 2852–2853). Eventually, union pressure to engage those men won the day, but the Commissioners were critical of this exercise of union power (RCT, 5: 1595).

As we explained at the outset, a political economy approach to industrial disasters is crucial, as it is attentive to how the social relations of capitalism shape business practice, management decisions, and OSH. *Economic pressures* on the West Gate project illuminate clearly how employer concerns about timeliness in production and efficiency and delays on site are not neutral, but shaped by a dominant ideology that privileges profit — and, from the employer perspective, this equates to the pace of production — over safety.

The Royal Commission

The West Gate Bridge Royal Commission began hearings on 28 October 1970 and its report was made public on 8 August 1971. It heard evidence from 52 witnesses and considered 319 exhibits (RCR, 1971: Appendices A and B). Although such inquiries have an aura of judicial independence, they are, as Prasser (2006: 31–32) put it, ‘creatures of executive government’. It is governments that establish royal commissions, decide terms of reference, set the duration of the inquiry, appoint commissioners, and determine what resources will be put at their disposal. Moreover, as argued earlier, such inquiries do not exist outside the social relations of class society and the structural interests embedded in governmental and legal processes.

Three aspects of the West Gate Royal Commission concern us here. First, the unions wanted expanded terms of reference. Kenneth Marks QC, a Maurice Blackburn lawyer acting for the Victorian Trades Hall Council (VTHC) and the seven unions involved in the West Gate site, argued that the Commission’s original mandate might limit the investigation to questions about ‘what happened’, excluding broader questions of safety precautions (RCT, 1: 2–4). Marks asked the Commission to examine OSH protocols on site, whether any laws were broken, and whether current regulations and laws were sufficient to prevent future loss of life. After some consideration, Justice Barber rejected the expanded terms of reference. Further, although they were subsequently extended ‘to inquire into and report upon whether any aspect of the design of the steel span between piers 10 and 11 is inadequate or undesirable’ (RCR, 1971: 106), important matters of local regulatory standards — a key pathway for Quinlan — were not examined and an opportunity for the investigation to make an important contribution was lost.

Second, we note that the unions did not formally participate in the Royal Commission beyond the first sitting day (RCT, 1: 11). Approaches on behalf of the VTHC were made to the State Government about covering representation costs incurred by the unions, estimated to involve \$10,000 in legal fees (Dean and Teague, 1970). In the Victorian parliament, conservative premier, Sir Henry Bolte, advised that he had refused the VTHC request, maintaining that ‘the Royal Commission will perform its function and represent the public, which includes the trade union movement’ (Anon, 1970c; *Hansard*, 1970: 2051). When a Labor member pointed out that other parties had representation at the hearings, Mr Bolte argued that those parties had paid for their legal teams, refusing to consider unequal corporate and union capacities to pay (Anon, 1970c; *Hansard*, 1970: 2051). Because the unions were not represented, unsubstantiated assertions about union activity on the site were allowed to enter the record unchallenged.

Third, we consider apprehensions of bias. On the Commission’s second sitting day, Chairman Barber raised press commentary about Sir Hubert

Shirley-Smith, who had enjoyed a close personal and professional association with several senior Freeman Fox engineers. Barber maintained that Shirley-Smith's credentials and impartiality were beyond reproach, that he had not been employed by Freeman Fox since 1936, and that he was named in the Act establishing the Commission and therefore could not be dismissed. Via the office of Clyde Holding, then State Labor Opposition leader, a long and well-researched typescript regarding Shirley-Smith's biography had found its way to the VTHC (VTHC collection, UMA). The document outlined life-long associations between Shirley-Smith and both Sir Ralph Freeman, who established the Freeman Fox firm and his son, also Sir Ralph Freeman, who was its managing director when the West Gate project was commissioned, as well as Sir Gilbert Roberts, the West Gate designer (Anon, 1970a). Holding subsequently stated that if Labor colleagues had known this information, they would have deemed Shirley-Smith's appointment improper and not supported it (Holding, 1970).

All royal commission reports are inevitably selective in some form or another. However, the West Gate inquiry was limited in relation to: the terms of reference; the Commissioners' selective appreciation of some evidence; the professional and personal associations of Commissioner Shirley-Smith; and, the inability of the unions to participate in the inquiry. As a result, the persuasiveness and completeness of the findings are open to criticism; certainly, the Royal Commission inquiry and its findings cannot be presented as a neutral account of a disaster.

Conclusion

Only months before his appointment to the Royal Commission, Shirley-Smith wrote that engineers must urgently address safety in construction, because of the human and financial costs. In words that would later contradict the emphasis attributed to union conflict in the West Gate Royal Commission findings, he stated that 'much more working time is lost through accidents than through strikes' (Williams, 1969). One wonders if the damning evidence against his former colleagues at Freeman Fox encouraged Sir Hubert to recant this position and to level blame wherever else it might stick, including on the project's militant unionists who had, several times, taken action in pursuit of improved health and safety.

While the Royal Commission investigation was thorough and made a range of substantive conclusions, we argue that the Commissioners' findings were imbued with class prejudices that encouraged attribution of blame to workers and their unions. Arguably, workers' capacity to refuse to work in a dangerous environment was the only effective means that may have averted tragedy. Regrettably, however, while worker organisation on the West Gate was highly evolved, OSH organisation was

not. Workers were, ultimately, unable to fully interrogate the warning signs provided by the Milford Haven precedent, especially given the false assurances made by engineer Jack Hindshaw prior to the collapse.

By closely examining the Royal Commission transcript volumes, this chapter highlights more complex pathways to disaster than countenanced by the Commissioners, ones that more fully acknowledge economic pressures and inequities of power relations. Moreover, as we are writing this chapter, the 50th anniversary of the West Gate disaster is approaching. We posit that the utility of revisiting the causes of the collapse can be seen in current growing reliance on fragmented work organisation, and multiple levels of sub-contracting and insecure work arrangements that make workers vulnerable still to externalised risks. Importantly, the West Gate disaster provides a reminder that the causes of multiple fatality disasters, while sometimes poorly recognised by managers, are predictable. Moreover, Quinlan's methodology is here shown to be applicable outside mining, with a forensic structure that can suggest prevention initiatives.

Notes

- 1 All references to the Royal Commission Transcripts provide the volume number followed by the page number (e.g. Volume 1 page 11 is 'RCT, 1: 11').
- 2 These were the Amalgamated Engineering Union, the Australasian Society of Engineers, the Boilermakers and Blacksmiths' Society of Australia, the Builders Labourers' Federation, the Building Workers' Industrial Union, the Federated Engine Drivers and Firemen's Association, and the Federated Iron Workers' Association of Australia.
- 3 West Gate Welfare Coordinating Committee minutes, 26 October 1970, Citizens Welfare Service of Victoria, Administration Records, 2013.0122 Unit 3, 97/2170, University of Melbourne Archives.
- 4 The Inquest Deposition Files at the Public Records Office of Victoria (PROV, VPRS 24/3, Unit 120) contain an untitled, undated, and hand annotated typescript of what we are confident is a prepared speech for Coroner Harry Pascoe, to deliver his findings of the Coronial Inquest into the West Gate. In the typescript, Pascoe quotes from the Royal Commission Report, delivers his findings as to cause of death of each of the 35 men, and makes remarks on various elements of the disaster.

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