Where Next for Health and Safety?

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Contents

Foreword

Decades ago, when I was young and idealistic (i.e. naive), I worked for a multinational chemical manufacturing company. Part of my job was to advise on dangerous goods – I had the vocational training certificate and everything. One day, I took a telephone call from an overseas supplier who had been asked to send a large sample of a particular hazardous chemical. I told him that he couldn't just 'pop it in the post' and that 'there were rules for this kind of thing'; he should speak to a local shipping agent to get the details of what was required for this specific shipment. This piqued his interest; he wanted to know some of the details so that he would know what was involved. (Experts in any field are trivially easy to 'pump for information' – they know so much and are excited by anyone showing even the slightest interest.) I told him that it needed special packaging (UN type-approved, certified and marked to meet impact and static loading standards – international transport is notoriously rough and leaks of dangerous chemicals are unwelcome…); this all needed to have prescribed marks, labels, and be accompanied with precise (i.e. unforgiving) documentation. I even faxed (yes, it was that long ago) him the examples included in the relevant international regulations and guidance.

A few weeks later, we received a package – a rough, hand-made, wooden tea chest; all the 'marks and labels' were beautifully hand-painted. The documentation was perfect. It was a wonder that it had survived the journey. The reasoning behind the rules (i.e. to avoid harm to people in some nasty incident) had been lost on the supplier, and replaced instead by the rules alone. I was both impressed and shocked that the complex layers of safety rules and checks had been so easily and completely circumvented. This was due in no small measure to dumb luck – had there been an incident (a matter of chance here), it would have all been thoroughly investigated and harshly dealt with by regulators. How could such an obvious flaw have been missed?

Advances in health and safety are served by revealing how things really are rather than settling for the appearance of it (succinctly expressed by the popular Latin motto *esse quam videri*). The authors seek to uncover the truth about the state of health and safety, take stock, and suggest a possible future direction that is simpler (or at least not as complex as it is now). It is based on evidence from interviews and an honest appraisal. Some of the thoughts, conclusions, and suggestions may offend; it is certainly

not designed to be comfortable reading, but to provoke change. But you will also be entertained. It is full of insights that will make you chuckle and also make you cringe as you recognize aspects of it in your own working life.

Once the truth is recognized, there is an opportunity to make, refine, or test systems of work so that they more effectively tackle risk and, as far as possible, help prevent harm to people. The authors do this by first asking the right questions. They note, for example, that the mere existence of a risk assessment does not mean anyone has taken any sensible steps to consider risks and put measures in place to protect people. Although clearly not the original intent, a risk assessment document may be there simply because a risk assessment is needed to get the job done, and that has no material impact on making the job safe. If this all sounds familiar, this book is for you. If you don't recognize this, this book is for you.

David Towlson

A view from afar – an alternative foreword

While this book is targeted at UK audiences, I was immediately struck in reading it how little difference there is between the challenges experienced in the UK and those that I have seen in Canada, the USA, Asia, Australasia, and the Caribbean. With the exception of the United States which has steadfastly held onto its prescriptive legislation, the 1974 Health and Safety at Work etc. Act (HASAWA) with its performance-based approach has acted as a template and example for many other jurisdictions to adopt. The term 'reasonably practicable' (or some variation thereof) appears in the legislation of every jurisdiction where I have supported health and safety efforts. The authors expand on the notion of 'safe to operate' against 'operated safely'. In this context 'safe to operate' means reliable and able to fulfil its statements of requirements. The performance-based legislative approach, with universal application, would indeed appear to fit the bill of being both reliable and fulfilling its statement of requirements.

Yet, as the authors suggest, while the principle of protecting people has almost universal acceptance these days, the profession has made few great leaps; there has been very little *discontinuous improvement*. Perhaps this is because while the legislative and regulatory frameworks worldwide are safe to operate, they are often not operated safely; they are not operated the way they

were designed or intended. Left to our own devices we have abandoned innovation in approaching risk and have instead created the bureaucracy that has led some of the courts in Australia to use the phrase 'paper safe' in their judgements (Smith, 2018). Bureaucracy was also highlighted in the report of the Pike River mine disaster in New Zealand (Pike River Royal Commission, 2012) when Justice Pankhurst said '…the number, and length of the documents posed a challenge to the credibility of the system.' In Canada, the legislation is also performance-based, just like HASAWA, and there the mountain of paper also continues to build, although my opinion is that this is due in part to misconceptions around the Westray Bill, which established provisions for occupational health and safety criminal negligence. Criminal actions which must be proven beyond a reasonable doubt are not the same as strict liability offences, which only require the prosecution to prove that an unlawful act or omission occurred, not that there was intent (*mens rea*).

We are seeing some change; the influence of special operations folks turned public speakers in the USA has confirmed the value of having the executioners of a plan also being the planners, for example. We are seeing greater understanding of work as done against work as imagined, and of the value of high-reliability organizations. Yet, despite all this, we have not recognized that, much like the forklift truck example highlighted in the book, it is not the legislation that creates the risk (in this instance defined according to ISO 31001 as the impact of uncertainty on outcomes), but the programs or management systems built to comply with it. In essence, it is our interaction with it that creates the risk. The modern definition of risk, namely the impact of uncertainty on outcomes is important – we cannot be sure that the control will function as required every time unless we consider what the authors describe as 'the environs of risk'. This we do not do well. Furthermore, we should distinguish the management of ''elf and safety' from the delivery of it.

In 1931, Neil McElroy wrote a famous memo to Proctor and Gamble management (Ritson, 2009). The principles of brand management that he laid out are equally applicable for us – diagnosis, strategy, tactics. What was discovered later was that the three parts are multiplicative – get a zero on any and the total will always be zero. In another performance that also became quite legendary, Kerry Packer appeared before the Australian House of Representatives Select Committee on Print Media in

November 1991. While the performance was entertaining as Packer sparred with the committee members, certain parts of what he said are pertinent to this discussion. Packer said, 'every time you pass a law you take someone's privileges away from them' (Packer, 1991). I have already agreed with the authors that the 1974 Act, properly implemented and enforced, is fit for purpose. I doubt we can point to any health and safety failing anywhere in the world and not be able to say, 'that is exactly why this legislation was enacted'. But to return to Packer, the privilege that is taken away when we impose additional regulatory burdens, particularly as a knee-jerk response to an event, is the freedom to innovate, the freedom to make mistakes, and the choice to learn from them. The same thing applies to our programs and management systems. Accepting the diagnosis that the authors have carried out in this book that the existing legislation, stripped back to its original intent, is and remains fit for purpose, we can then think about strategy.

My work is focused on encouraging health and safety to become a strategic contributor, an integral part of the unique value proposition. Strategy is as much about what we choose not to do as what we decide to engage in. Expanding the scope of responsibility to include environment, quality, and so on when you haven't gotten a handle on the basics makes no sense strategically. We need to first decide where we will play (Martin, 2022). Further, the choices are impacted because the elements of value that influence management are not the same as those for the workforce. Only then can we decide what winning looks like. I assert that winning needs to be defined as more than failing less often, but that is a subject for another day. Only now can we decide what systems, codes of practice, method statements, SOPs, SWPs, SJPs, and so on we require as tactics to create an enabling system. Nothing more, nothing less.

Tyler Baker

Biographies

David England DipNEBOSH FIIRSM FIConstM RSP

David England first started work with the civil service before going on to spend 25 years in operational management. During that time he was responsible for, variously, large numbers of people, lorries, food stock, and great quantities of petrochemicals. The challenge of never knowing what the next problem would be, or how impactful, served him well for a career in safety which he began after passing the prestigious NEBOSH diploma in occupational health and safety. Having passed, he then set about destruct-testing everything he had learned in order to make sure it worked in the 'real world', as all of his operational career had been spent also trying to turn a profit for the companies he worked for.

He and Dr Painting have worked together for nearly a decade, and in that time have been fortunate enough to have worked on construction and infrastructure projects for local authorities, ports, military bodies both at home and internationally, and the UK government. They have also advised such diverse bodies as the Australian Federal Road Management Association and even the Health and Safety Executive (HSE) itself.

For more than 20 years, David has been involved in quarterly meetings, run by a specialist employment solicitor friend, to discuss topical employment issues with local businesses. Having employed and managed quite literally hundreds of people over the years, he is well-versed in employment law. He also authors, reviews, and develops training and examination material for NEBOSH.

David is a Fellow of both the International Institute of Risk and Safety Management and the Institute of Construction Management.

Dr Andy Painting PhD CEng FSARS FIConstM MIET

Andy Painting joined the Royal Navy as an apprentice after leaving school. During his 23 years of service, most of which spent as a submariner, he had plenty of time to learn how to reach nuts, bolts, and valves situated in the darkest of bilges. He also realized that he would need to be able to dislocate a number of joints in order to be able to maintain them. This triggered in him a desire to understand why the design of something on paper so often appeared to completely disregard the ability of the user to operate or maintain it in reality.

After leaving the navy, Andy went on to become a safety engineer, studying at bachelor's, master's, and, finally, doctorate level. He went on to become the chief engineer at HM Naval Base, Portsmouth, which involved the enormous responsibility of looking after everything in the dockyard from historic buildings and vessels, docks, and all the associated infrastructure to support naval maintenance and refits.

During this time he met David England and they quickly realized that engineering and health and safety were looking at the same problem but from opposite ends. This led them to develop a methodology for construction projects and a safety auditing regime, both of which are based on the principles of the engineering safety case. These are the subjects of their previous books.

Andy is a Fellow of both the Safety and Reliability Society and the Institute of Construction Management and sits on the board of trustees for the Mary Rose.

David Towlson PhD BSc (Hons) Cert. Ed. (PCET) CMIOSH PIEMA David Towlson initially trained as a physical chemist (that's applying physics to chemical systems). He spent most of those early years building parts for a nuclear magnetic resonance spectrometer, persuading it to work and analysing any data that it unwillingly gave up by writing FORTRAN programmes on an unforgiving mainframe computer. Apart from short placements at an oil refinery and with Customs and Excise, his first 'proper job' was in research and development with Courtaulds (now part of Akzo Nobel) – a large industrial chemical manufacturer. He spent many (happy) hours in a research lab, on pilot plants, and production lines, and even avoided serious injury. David's interest in health and safety began here, and he gained formal health and safety qualifications as a result.

He later moved to the role of safety advisor with Rohm & Haas (now part of Dow Chemicals) – another international chemical manufacturer – which supplied the electronics sector. He travelled widely as part of a number of global projects and safety initiatives. While in this role, David occasionally delivered health and safety training, tutored students on distance learning courses (he needed the money) and became a NEBOSH examiner (he needed even more money). This encouraged a move to RRC International, a leading provider of health and safety training, where he rose to the position of Director of Training and Quality, training

as a teacher on the way. At the same time, he acted as principal examiner for NEBOSH for both their International Diploma in Occupational Health and Safety and Technical Certificate in Oil and Gas Operational Safety. He was also an external verifier on their HSE Regulatory Diploma, a vocational diploma designed solely for HSE inspectors. Because you can never have too much of a good thing, he also supervised students on the Loughborough University MSc programme.

He now works as Director of Learning and Assessment for NEBOSH where his job, in a nutshell, is to make sure NEBOSH's qualifications, courses, publications, and assessments are designed and developed to be fit for purpose.

Tyler Baker MBA iDipNEBOSH Tyler Baker is an international occupational health and safety (OH&S) consultant currently based in Alberta, Canada. His experiences cover manufacturing, oil, gas and chemical, plant maintenance, and outages, as well as large construction projects across North America, Asia, Australasia, and Europe. His integrative and pragmatic approach to safety had its genesis with a university professor in New Zealand who demonstrated in practical terms how aligning and combining conservation and production values could produce results for high country land use, water use, and endangered species management. This informed his viewpoint that safety and production could be similar partners. He further believes that safety can and should be a strategic contributor to an organization, assisting in establishing and maintaining a unique value proposition and competitive advantage.

He is excited by the future of OH&S; of solving complex challenges, of turning exciting ideas into tangible reality, and of striving to find a better way and shape a better world. He describes wanting to get up every morning with real purpose and something important to achieve, embracing life with the abundance ethos of 'one more time' and 'just one more'.

Outside his health and safety and strategy work he is the photographer and principal of Tyler Baker Photography, a cultural social enterprise based in Canada that supports cultural diversity in dance, music, and other art forms by capturing and providing professional-quality images to artists without access to them, while at the same time serving the needs of organizations seeking to align their brand with the arts and community.

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Introduction

As we mark the 50th anniversary of the Health and Safety at Work etc. Act 1974 we find ourselves in a world that is at once similar and yet quite different. While in the last half century we have seen much of the manufacturing once conducted in the country of consumption (particularly in developed nations) move further afield, we have seen great infrastructure projects in Europe and the USA which have required huge amounts of planning in terms of safety. Developed nations, too, having eschewed much of their reliance on heavy industry now have many more highly technical industries which push the forefronts of knowledge and capability, especially in terms of safety. Such sectors as artificial intelligence and nanotechnology are but two examples where existing safety standards and regulation are perhaps yet to catch up with the reality of what is being achieved.

The dislocation of the modern world, in comparison to just 50 years ago, where products are made compared to where they are consumed has created an inter-reliance between nations that we saw tested during the pandemic of 2020/21. Nation states can no longer retreat behind their borders and enjoy self-sustainment as perhaps they once might have done. And this is true also of safety thinking. The disaster at Rana Plaza in Bangladesh, for example, demonstrated that the developed world could not avert its gaze from the reality of personal safety in the 'new' workshops of the world. We could no longer hide from the responsibility we have for the products we have made for us at a cost we are more comfortable with. Production in the UK, Europe, and the USA is expensive in comparison to that in China, Bangladesh or Vietnam because we in the West demand better welfare in our work. We have to accept that better welfare, borne of decades of legislative process, should be a right of *all* workers.

Industrial production in the UK, rife with industrial disputes in the 1970s, has, despite a steady fall from 1980 and a steep drop in 2008/09, seen continuous growth, reaching its highest ever figure by 2021 (OECD, 2023a). And while the gap between services and manufacturing output saw a dramatic increase during the 2010s, this gap is closing once more, belying the oft-quoted belief that the UK 'doesn't make anything anymore' (UK Parliament, 2023). But production in the 1970s tended to be focused on large corporations working in traditional sectors such as steel and car production. Today, UK Plc is much more centred on smaller, dynamic organizations producing bespoke, precision

components and products. And as the number of registered businesses continues to grow, especially after the pandemic, the mix is moving towards fewer sole traders and partnerships and more towards corporate bodies. People are still, therefore, looking to work for an organization, with all the incumbent benefits that that brings.

The 1970s were a time of industrial strife in the UK not seen for 50 years. In 1972 alone there were some 23.9 million working days lost to industrial action compared to just 0.3 million in 2018 (ONS, 2019a). Even recent industrial action in late 2022/early 2023 does not begin to match the depth and breadth of the disputes in the 1970s. And yet, recent events have shown us that pay and conditions still dominate some sectors where inequalities are perceived to exist, and this is no more true than, perhaps, in healthcare which came through the pandemic with nothing but plaudits from the whole country (the National Health Service being awarded the George Cross by HM Queen Elizabeth II in 2022) before the realization dawned that pay and conditions were not commensurate with the exceptional work being done.

Construction, by contrast, has remained fairly constant throughout the last 50 years, accounting for between 5 and 7 per cent of gross domestic product. It has also seen in recent years some huge projects being undertaken such as the Olympic stadium; Terminal 5 at Heathrow; Cross Rail; HS2; and Hinkley Point C power station (Rhodes, 2016). In the 1970s many projects were still concerned with clearing and redeveloping sites that remained razed after the Second World War.

The fewer workers in the 1970s compared to today, by percentage, engaged in the services sector would have been regular commuters to their offices, no doubt where strict hierarchical divisions of space and facilities would dominate. There would also have been implicit dress codes for office workers, with business suits and even bowler hats being very much to the fore. Today, particularly after the exponential rise of working from home that allowed many businesses to function during the pandemic, offices often remain quieter places, and flexible working has become de rigueur rather than very much ad hoc. The number of women in the workplace has also steadily grown: in 1971 female participation in the workplace was 55.5% while by 2018 it was 74.2% (ONS, 2019b). Another far more dramatic, and, perhaps, much less welcomed change, is the gap between chief executive pay

and worker pay across many businesses over recent years. In 2019 the remuneration packages for senior executives in FTSE 100 companies was on average 119 times the median pay of full-time workers (CIPD, 2020). In some individual cases this rate was above 2,000 times, meaning on average one would have to work for eight years to collect the same pay as a CEO would do in one day.

Perhaps one reason for this egregious acceleration in pay inequality is the decline of trade union membership in the UK, from a peak in the late 1970s in excess of 13 million to a figure of less than half that by 2019/20 (Department for Business and Trade, 2023).

So, the industrial and employment landscape has changed somewhat over the last 50 years, and in some ways has stayed the same. *Plus ça change*. Workplace safety has, however, radically changed, and in many ways for the better. This, fundamentally, is due to the 1974 Act that laid the foundations for our current way of thinking, as well as for a number of other legislative initiatives that followed. The Act dispensed with all the previous myriad Factories Acts that the Robens Committee found so prescriptive and cumbersome. It brought in a fresh, modern approach of managing risk by identifying how it was *relevant to the risk's owner*. It used sweeping terms such as 'arrangements' and 'provision'; included the legal term 'reasonably practicable'; and, of course, gave us the phrase 'health and safety'.

Suddenly it was no longer satisfactory for an employer to add a guard to a machine merely to satisfy such-and-such Factories Act: they were now required to assess the *entire work process*, as well as the workplace in which that process was taking place, in order to properly identify the risks that workers were exposed to. Such things as substances that were required to perform the work; how they were stored and transported; the training and supervision of workers and the information they were supplied with; all became important components of a self-imposed and self-certified process for employers to develop and implement. It was a radical departure from prescriptivism and remains, arguably, one of the single most well-written and important pieces of legislation on the UK's statute book.

But if our current legislative foundation for workplace safety is so good, why have we written a book about where health and safety has gone wrong and what we think should be done about it? If we live in an apparent utopia of safety why change anything?

The simple answer is that things *have* gone wrong over the last 50 years. Some are fairly readily apparent; some are much less so, being as they are dependent on that most capricious of subjects, human behaviour. One thing that has certainly not changed since the 1970s is ideology, and the fact that the UK's predominately two-party political system has, arguably, caused the greatest obstruction to growth, equivalence, and wellbeing. What a government of one ideological mindset decides during its administration is so often overturned later by a government made up of the opposite mindset. This may be all very well when the two main parties represent, per se, those that own businesses and those who work for them. Admittedly the Labour administration of 1997 to 2010 blurred the lines somewhat in terms of strict ideology, but the point remains that whether it is investment in the NHS, membership of the European Union or health and safety regulation, political parties have been divided over the decades by their perceived association to some form of dogma rather than a perspicacious worldview that benefits everyone, including UK Plc.

But safety is not an ideological issue and should not be a slave to political doctrine. The safety of people at work, or living in high-rise apartment blocks, or walking along the streets are not subject to any particular political motive. It is a given that people should be safe, within all reasonable practicability. Hence the need for properly organized and funded police officers, firefighters, military divisions, building codes, healthcare professionals, and workplace safety. When we start to cut corners and costs in provisions like these we begin a long, slow descent towards making things *less safe* in all manner of ways. It is not for no reason that 'cost-cutting at the expense of safety' is an aggravating factor listed in the sentencing guidelines (Sentencing Council, 2015).

But political vacillation is not the only reason for the need for this book. The safety regulator, business leaders, institutes, the media, the court of public opinion, and even health and safety practitioners themselves have all played a part, to a greater or lesser extent, in the creation of the situation we find ourselves in today. Throughout this book we shall examine these influences, for better or for worse, and how they have affected perceptions and procedures that we find commonplace today. We shall then dissect certain aspects of these perceptions and procedures by asking questions that we have been asked ourselves by the many people who helped with the book's research. The answers are

not always straightforward but they are honest, if at times a little controversial. Following this discourse we have assembled a list of suggestions: a wish list of improvements that, we believe, will drive safety towards a place where implementation, integration, and involvement will hopefully be greatly – and irrevocably – enhanced across all workplaces and work situations.

The need to look back historically at how we arrived here is important because the story of safety is also the story of society. There is a tendency to view people in the past through the lens of misconception, so that we believe them to have been quintessentially different from us somehow. There have always been leaders and followers; creators and admirers; thinkers and believers. The propensity of certain nations today towards sabre-rattling and nationalistic chest-beating shows that in some ways we are no different from the societies of the early 20th century, the Middle Ages, the Dark Ages, or even ancient times. All human societies have developed accepted norms that, rightly or wrongly, had to be endured or enjoyed by the people living in those societies. Sometimes there are paradigm shifts in society that create change – sometimes for the better – and for us one of these is the change in the perception of safety that occurred in 1802.

The overwhelming sense of opinion that we divined in the course of researching this book was that safety – and more precisely, health and safety – had somehow lost its way and that something needed to be done about that. Not that anyone could identify exactly *how* it had lost its way, nor what the solution was to remedy the situation. There have certainly been many works written about potential solutions to individual problems with health and safety, but we wanted to look at the situation more holistically and find solutions that could hopefully genuinely make a difference. In order to do that it is important that we are cognizant of the tools and parameters that we already have in place. Major change always causes upheaval, and upheaval is rarely a welcome thing in any society.

The reader may find themselves disagreeing with some of our observations and conclusions and this is to be expected; for although, as we have said, safety is not about ideology, it is subject to differences of opinion. What is required is a change in mindset from the guardians of the status quo – the regulator, the institutes, the practitioners, and, particularly, the government. Continuous adaptation is only acceptable when the foundations

are firm and proper – which we believe, fundamentally, they are. But we must ask if we have not become slaves to incrementalism, dancing around the edges of a problem that so many have had a hand in creating. And that will not improve until we have a level-headed conversation about it.

As we examined in *Effectively Managing the Case for Safety* (England and Painting, 2023), what one person deems *safe* is not necessarily what someone else might. The reasons for this we shall examine again in this book but, suffice to say, the opinions and interaction of all those involved in the dissemination and instruction of the regulations concerned with safety will be required to develop and accomplish the necessary elevation of the safety ideal. Two hundred years on there is another chance to change things for the better.

Research methodology and acknowledgements

Despite relying on their own extensive careers, personal knowledge, and research, the authors would not have been able to complete this book without the assistance of a large number of individuals who gave up their time to speak with us.

Over 30 people agreed to be interviewed by the authors during the very height of the Covid pandemic by way of online meetings. Each interview was preceded by the interviewee being sent a list of nominal questions which the authors had created in order to stimulate discussions around health and safety in general. Although each interview was ostensibly guided by this set list of questions, the conversations often took unforeseen turns or introduced adjuncts that overtook the scripted interrogation. This was entirely deliberate. What the authors were interested in was what each person *actually thought* of health and safety, with regard to their own particular sphere of knowledge and operation, rather than just relaying a predetermined response guided by any potential allegiance or loyalty. Hence, we discovered so much about such diverse subjects as fire safety, psychology, skin diseases, and educational outcomes.

Each person interviewed as part of this research is an expert in their relevant field. We were enormously fortunate to be able to speak to so many of them and the authors wish to formally record their appreciation to each and every one who helped to develop the ideas and arguments in this book.

Chapter two is based around certain quotes that some individuals made during their respective interviews. We have used these as discussion points for the dialogue that follows each one as they represent free-flowing thought from those individuals during their interview. These 'off-the-cuff' comments were exactly what we wanted in order to stimulate the conversation. The individuals from whom each quote derive are not identified in the book, as we believe that who said what is not as important as what was actually said. However, in order to show our gratitude properly, we should like to list all the individuals who willingly gave up their time and their thoughts in order that we could complete this work.

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Graham Wailes

Additionally, we are grateful to Clare Fleming who was kind enough to relay our request for assistance with the book to Fellows of the International Institute of Safety and Risk Management.

We would also to thank Dr David Towlson for very kindly agreeing to write the foreword, and to Tyler Baker for his incisive, alternative take in the section *A view from afar*.

By the same authors

An Effective Strategy for Safe Design in Engineering and Construction (2022)

When working together at HM Naval Base Portsmouth, David England (a CDM coordinator) and Dr Andy Painting (the base's chief engineer) realized that their respective jobs were dealing with the same issues but from opposite directions. This persuaded them to join forces and provide engineering and safety solutions in a combined format, which almost inevitably led to becoming principal designers under the construction regulations (CDM). After far too many meetings involving people who really should have known better, they came to the conclusion that not only was CDM not as fully implemented as it should be, but that it was not even fully understood.

Deciding against explaining how to be thoroughly efficient principal designers like themselves, they instead wrote a book about how CDM is actually a practical framework for managing *any* project. The added bonus of running a project under CDM is that it also ensures the project is legally compliant from the outset. *An Effective Strategy for Safe Design in Engineering and Construction* uses a number of disparate examples to show how CDM can be used and culminates in a step-by-step process guide that explains what to look for at each and every point during a project.

Effectively Managing the Case for Safety (2022)

The central tenet of health and safety is, arguably, the risk assessment. Everyone does them and everyone has an opinion on how they should look. But one of the major issues that the authors have found, having seen and reviewed hundreds of risk assessments in their time, is that often very little thought is given to what goes on *around* risks. A risk may be something falling, for example, but *how* can it fall, *why* would it fall, and what would be the *consequence* if it did? Added to this, safety audits tend to examine only that a risk assessment *exists*, not whether it is actually proportionate to the risk itself. Or, in other words, is 'suitable and sufficient'.

To this end, the authors set about devising an audit process that did away with the usual items to check off and, instead, used the principles of engineering safety cases to interrogate the identification and mitigation of risk. This system examines what the authors call the 'environs' of risk – those influencing factors that affect the potential frequency and severity of risk, and the consequences should the risk be realized, as well as the effectiveness of any control measures proposed to deal with it. The process looks at four core areas – culture, operations, documentation, and administration – and reveals in detail many of the individual factors within each area that can create flaws in our controls. The outcome, known as CODA, is a practical system to understand, and engage with, risk in a more effective way.

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David England and Dr Andy Painting
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Chapter 1
Health and safety – the origins

In the beginning

There may be those who consider health and safety to be a relatively modern concept; something that quietly ticked along in a peculiarly British way – something that was there but not really concerning to too many – and was then made all too complicated by the UK's participation in the European Union. For younger readers, there will not be a time when health and safety was not a 'thing' in their working lives, and the conversation surrounding its application will most likely be biased around how it is practised now, and what improvements are required in terms of current performance. For those who have studied the subject to a professional level, perhaps for some type of qualification, there will be a number of memorable names, observations, and events – aside from the obvious legislation – which may conjure very much a 20th century flavour to safety conceptualization and implementation. Names such as Hale, Reason, Maslow, and Rasmussen, and events such as Piper Alpha, Grangemouth, Kegworth, and King's Cross may form ready pictures in one's mind of how the struggle to improve the safety of people – as well as the places they visit, and the machines they interact with – has been waged for decades. Indeed, what became known as the Hawthorne Experiments were conducted by Elton Mayo between 1924 and 1932; so it could be said that the struggle has gone on for a century.

But the concept of providing a safe place of work has, of course, gone on far longer than that. Human beings are by nature caring creatures, and will look out for other humans when working or living alongside one another. This is particularly so in the event when humans form groups which, for one reason or another, are pitted against one another, such as in the case of landowner and serf; factory owner and worker; captor and captive. In fact, despite a natural human tendency to care, we also have an innate predetermination to biases, which have caused endless conflict and misery throughout human history. We are biased against others who do not look like us, sound like us, worship the same things as us or dress the same way we do. It seems strange, considering all of humankind is derived from a single source (whichever way you believe humans came to exist, we are ultimately all related), that our entire time on this planet has been scarred by aggression, persecution, division, and hatred. This inbuilt distrust that we have for one another, despite all being part of the one human family, is no better exemplified by the fact that today, with the world on the brink of environmental catastrophe, our nations still commit vast resources to the invention and manufacture of weaponry – an endless catalogue of novel and exciting ways to exterminate each other against a backdrop of a species that is silently exterminating everything anyway.

Even against this modern view, however, our opinion of the working practices of bygone times is still one that tends to the squeamish. We are rightly incensed that children were made to clean chimneys; that people were forced to work in dark, dangerous conditions; that limbs and eyesight could be so easily lost; and that people were generally so poor while their masters became so rich at their expense. Of course, the sad reality is that, today, there are the equivalent of mill owners and landowners who are so mind-bogglingly rich that they outrank some entire countries in terms of wealth. And as this super-mega rich elite wage a battle with each other in a testosterone-driven fury of seeing who can reach Mars the soonest, we see that our ancestors, after some period of introspection, actually began to make the world a slightly better place. Or at least tried to. The owners of mills, land, and factories built villages, towns, hospitals, schools, and churches. They had their vast estates elegantly landscaped in ways that we are able to enjoy even today. They built infrastructure like railways, tunnels, and canals which, although ostensibly serving their own pecuniary needs, were also gifts to the nation in creating better and faster transport for all.

That human beings generally look out for one another, especially when formed into groups that have some common purpose – whether that is amongst themselves or in comparison to some other group – is understood. What we want to focus on, however, is the *regulation* of that compassion: the concept that we look after others because the law says we must. This is the major turning point for what we consider to be health and safety today: not looking out for others because it is the right thing to do, but *because it is against the law not to*. To understand how such a change in the paradigm can come about, we must look at how life ambled along for centuries beforehand. In general there were, in any given society, rich people in charge and poor people who did the hard work. The rich people sometimes attained their position by birthright, or by waging a war on some other rich person, or perhaps by poisoning their wicked uncle/stepbrother/cousin or whatever. The poor people, by comparison, were just poor, and eked out an existence as best they could and would work the land, or tend to animals, or perhaps serve in a rich person's army fighting against wicked uncles/stepbrothers/cousins and the like. In terms of competency for their respective roles, the rich people, who had everything done for them, had plenty of time to read, study, practise sword fighting, and learn about various poisons and how to apply them. Poor people, on the other hand, only had to know how to dig the soil, milk a cow or poke someone in front of them with a long stick.

We are summarizing, obviously, but this is pretty much how human society ran for centuries. The person at the top may have been a king, or a prince, or a bishop or just the biggest person with the sharpest sword, but they were in charge and their version of the law was what mattered. Sometimes these laws were written down, and sometimes they were even applied fairly across a whole society, like the Dane Law of the Vikings. But just having one person, or a small group of people, in charge of making the laws is always going to run the risk of liberties being taken or favouritism occurring – and you can guarantee that the people at the bottom of the societal ladder will be the ones coming off worst, except of course for the wicked uncle. What we are trying to demonstrate here is that care for those in one's charge was not a given. Certainly, there were munificent leaders who may have bestowed on their people a sense of compassion and stability. But either side of a leader

like that there could have been a complete lunatic – without the stability of statute law there were no guarantees.

In the UK a rather peculiar thing happened in that, whereas justice was originally dispensed at the court of the king, this became ever more difficult as the population grew and became more spread out across the land. And so judges from the king's court were sent out to travel designated circuits of the land to dispense justice in the name of the king; and because they were representatives of the court, this term was used to describe where they 'set up shop' in each town. Every so often, these judges would return to the king's court to discuss their cases and the various findings that they had imposed: these conversations became the 'common law' that still survives as a cornerstone of the body of law in the UK to this day. We also still have circuit judges who dispense justice from a building known as a court.

But the catalyst that started the kind of overarching legislative control that we are discussing here was, quite literally, something that completely changed the world as people knew it. The Industrial Revolution of the late 18th century was, and remains (despite the best efforts of marketeers in the technology sector), the single most progressive shift in human societal function. That it happened at all is arguably inevitable; that it began in Britain was by reason of a concatenation of events leading up to it that favoured these islands. Some of those events undoubtedly do not reflect well on the attitudes of the time, but we cannot change history, unfortunately, and we are not here to discuss the unconscionable acts of colonialism. Of import to us is the radical change – the 'levelling-up' if you like – in society's structure.

The Industrial Revolution changed the way people worked, where they lived, how they spent their free time, and how they began to be perceived in the great scheme of things. The Poor Laws, introduced during the reign of Queen Elizabeth I, had of course brought about a very basic version of welfare to protect the poorest in society, but their function was perhaps more concerned with combatting civil unrest rather than any altruistic purpose. Great Britain was at that time increasingly reliant on the flourishing wool trade for its wealth. But the Industrial Revolution prepared the way for a burgeoning middle class of society, and an ever greater need for skilled workers. The middle classes – who included everyone from shopkeepers to industrialists – had an ever-increasing desire for education, and skilled workers required increasing levels of training as machinery became more complex. There was also the spectre of the revolution in France in 1789 which may have focused British political minds on the need for better welfare for the working population, lest they get ideas about carting off the ruling classes to the stockade.

The first piece of legislation that might be arguably thought of as connected with health and safety was the Health and Morals of Apprentices Act of 1802, introduced by Sir Robert Peel. Peel was himself a mill owner and most famously associated with introducing the first police force in London, who were known initially as 'Peelers' and later, and more lastingly, as 'Bobbies'. The Health and Morals of Apprentices Act was an attempt to provide some basic welfare in the factories that were springing up all over the country and where an increasing number of children were being employed in quite scandalous conditions. The Act required children to be taught reading and writing; to not work more than 12 hours

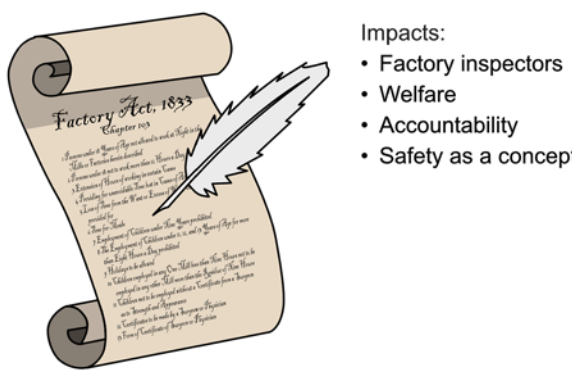
a day; to not be allowed to sleep more than two to a bed; and to be provided with 'suitable and sufficient' clothing. The use of those two particular words, suitable and sufficient, is interesting when we consider their connotations in modern health and safety practice.

A number of changes were made to improve this fledgling legislation over the coming years, and the census of 1831 revealed that some 3 million people were working in manufacturing – around 18% of the population, compared to just 9% in the 2011 census – with a large number of these being children (1831 Census). It became clear that something of an overhaul of the way that factories operated was required, despite the fact that many prominent industrialists were also politicians, and often there was some antipathy towards introducing laws that might have a negative impact on production — and, thereby, profits — of these members of parliament. A Royal Commission set up in 1832 quickly revealed the harsh working conditions still being endured by workers (especially children) in what William Blake described as England's 'dark Satanic mills' (Blake, 1804–08).

The Commission's report led to the Factory Act of 1833 that not only legislated improved working conditions but also, for the first time, ensured that the new law would be policed (see Figure 1.1). An alternative viewpoint is postulated by Len McCluskey, TUC General Secretary between 2011 and 2021, in pointing to the publication of Karl Marx's *Das Kapital* and its exposé of the length of the working day for ordinary workers as being the catalyst for change in working conditions (McCluskey, 2020). Marx did indeed write his seminal work while exiled in England, where he may well have witnessed the working lives of ordinary people first hand, but his work was unfortunately not published until more than 30 years after the first Factories Act.

The Act of 1802 had already provisioned for factories to be assessed by 'visitors' who were appointed by local Justices of the Peace. Unfortunately, the justices were often themselves mill owners, or the visitors were clergymen whose parishioners would include said mill owners, who were possibly also financial benefactors to their local church. It was a system that was unlikely to provide the proper level of enforcement and the Factory Act of

Figure 1.1 Impacts of the Factory Act 1833



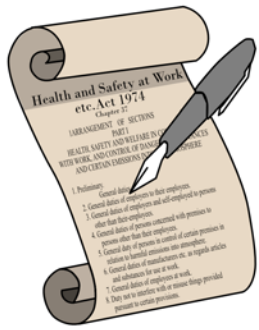
1833 rectified this. This Act introduced factory inspectors who were given both judicial and executive powers including the right to enter premises. This sea-change in the enforcement of welfare legislation was to begin the slow process of regulatory oversight that culminated, almost 150 years later, with the introduction of the Health and Safety Commission and Executive. In 1833, however, there were just four appointed factory inspectors (assisted by a number of superintendents) and their territory covered all of England, Scotland, Wales, and Ireland.

The original Factory Act, and those subsequent to it, began to install many of the components that today we take for granted in health and safety legislation. It was, however, a piecemeal approach as each new piece of legislation would, inevitably, reflect on the productivity of any given workplace – it was something that, therefore, required nurturing through parliament, as opposed to wholesale introduction. Some of these components included such things as a limit on working hours in a day; guarding of dangerous parts of machinery; and the requirement to notify if an injury to a worker prevented them returning to work the following day. Factory inspectors also demanded better standards of welfare provision in terms of toilets, washing facilities, and so forth wherever possible.

The general movement towards better pay, conditions, hours, and welfare for a large number of workers throughout the mid- to late-nineteenth century, combined with the alarming technological progression in mechanization was, when taken into account alongside the changes in socioeconomical and demographical conditions, what really provided the 'revolution' in Industrial Revolution. But the piecemeal system of regulation began to have several flaws exposed in the 20th century, arguably due to further progress being made in technological processes and the development of new materials such as alloys and polymers. This is, of course, the reason why legislation is updated and replaced – it is to keep up with current practices and, to some extent, anticipate future ones. But a number of disasters during the 1960s and early 1970s, as well as rising numbers of fatalities and major injuries in the workplace, drew into sharp relief the failings of the law to require an appropriate assessment of the risks posed by any particular undertaking and to protect the public from their consequences. Following the introduction of an occupational safety act in the USA and the subsequent creation of the federal Occupational Safety and Health Administration (OSHA), the UK government appointed Lord Robens to report on safety and health at work.

Until the introduction of the Health and Safety at Work etc. Act in 1974 (HMG, 1974) (see Figure 1.2) following the recommendations of Lord Robens' report, workplace safety had been usually described as 'safety, health, and welfare' of the workforce, the inclusion of the word 'welfare' being an important continuation from the earliest legislation in this regard, going all the way back to the Poor Laws of the 16th century. Of course, the term welfare would have had different connotations when first introduced and, indeed, perhaps right through the Industrial Revolution. If we imagine a country's society undergoing the same transformational changes that Maslow (Maslow, 1943) described in his hierarchy of needs, we might imagine that the Poor Laws were in response to the primary level of physiological needs: those of biological necessity like having enough to eat and somewhere to sleep. We might further imagine that the principles of welfare introduced by the Health and

Figure 1.2 Impacts of HASAWA



Impacts:

- Responsibilities
- Brought design into safety thinking
- Introduced concept of risk management

Morals of Apprentices Act in 1802 were in response to the second level of safety needs: the security of body and particularly of mind.

We could postulate that the third level in terms of societal needs, as compared to Maslow's hierarchy, was dealt with by the Health and Safety at Work etc. Act of 1974. The social needs of belonging and a sense of community were, we could argue, provided by the Act through its requirement for not only an employer to take care of their employees, but also for the employees to take care of themselves and their colleagues. It also provided the 'general duty of persons in control of certain premises in relation to harmful emissions into atmosphere', an important responsibility on polluters and their effects on the wider community and, it may be argued, the environment in general.

The fourth level in Maslow's hierarchy is esteem: the feeling of recognition, confidence, and achievement. In societal terms we may think of this in terms of the daughter regulations that followed the Health and Safety at Work etc. Act in the years and decades afterwards. Two pieces of legislation that immediately spring to mind are those that required engagement with the workforce: the Safety Representatives and Safety Committees Regulations 1977 and the Health and Safety (Consultation with Employees) Regulations 1996, with the former being where representation is by a trade union representative and the latter where it is by an elected individual not connected with trade union activity. These two pieces of legislation encouraged employee participation in the safety of an organization's undertaking, thus promoting the workforce from follower to joint decision-maker in safety matters. This was of course reinforced by the Management of Health and Safety at Work Regulations in 1999 (HMG, 1999) with its requirements for cooperation with a health and safety coordinator, capability and training, and health surveillance and monitoring. The extension of employees' duties also, it may be said, expanded their inclusion in the process of safety provision through the requirement to bring any safety shortcomings to the attention of the employer.

Which leaves the final level of Maslow's hierarchy: self-actualization, or achieving one's full potential. Have we reached that point yet, from a societal point of view with regard

to health and safety? We do not believe so. There is, perhaps, still too much dislocation between the worlds of health and safety, safety engineering, risk management, and welfare. Can these disconnects be resolved? We certainly believe that they can to some extent. A lot of the issues are arguably connected with the use of language: the words associated with health and safety, engineering, and risk management may appear to be the same but often have different connotations, or raise different levels of interest – or alarm – to a practitioner in each of these professions.

This is not to say that we should introduce new words; that would be entirely counterproductive. Instead, we should evaluate what different words mean to different professions and understand those differences so that we may better work cohesively between them. After all, words like 'safe', 'risk', 'management', 'hazard', and so forth are all defined in the dictionary, and we may refer to them at any time for clarification. Rather, it seems that some professions – or spheres of professional function – have subsumed some words for their own ends, regardless of whether it makes sense to anyone else. This is not to be thought of as unusual: most professions create their own language and apply their own definitions to certain words. Health and safety has certainly been one of those professions and, as we are asking the question of where health and safety goes to next in this book, we shall remain within this sphere of influence and examine where it may have strayed and what might be done to improve things.

Shift in policy

In 2013, the Health and Safety Executive (HSE) made, as part of a number of sweeping changes, two particular changes to the guidance on the Management of Health and Safety at Work Regulations 1999. The Approved Code of Practice (ACoP) for the regulations was withdrawn – a move not welcomed by a majority of practitioners polled – and the guidance document Managing for Health and Safety was rewritten completely. At the time, the HSE explained that the ACoP for the regulations did 'not describe methods of compliance with sufficient precision for duty holders to be certain they have complied with their legal obligations'. This, many felt, was at odds with the core principle of the document which was the abbreviation POPIMAR (which stood for policy, organizing, planning and implementation, measuring performance, auditing, and reviewing performance), which related precisely the founding components on which a robust health and safety system should be based. The document was long and, some might say, complex; but its instruction was clear and formed an essential part of the syllabus for those studying health and safety, in particular the prestigious NEBOSH diploma.

The updated guidance, HSG65 (HSE, 2013), became a leaner document, and the central theme of its advice for creating an appropriate health and safety management system was the introduction of the plan-do-check-act (PDCA) philosophy, dating back to the 1950s. This move, it seemed, was based around two lines of thinking: firstly, PDCA was more universally understood amongst businesses generally and, secondly, it tied in with the philosophy of ISO management standards. The standard for health and safety at that time was OHSAS 18001 which, in due course, became ISO 45001. The guidance also introduced the concept of 'risk profiling' in a brief paragraph of the guidance, but

which also formed a component part of the PDCA routine the guidance described. There are two important points to note about this.

Firstly, PDCA was not the abbreviation the originator of the philosophy, Dr Deming, actually used. His original version was plan-do-*study*-act, a very important distinction. For Dr Deming, the use of the word 'study' was key to understanding whether the 'planning' and the 'doing' had actually achieved their goals. The word 'check' merely implies that so long as the 'planning' and 'doing' have been done, then all is well. This misses the point completely – we should not be interested in whether we have just performed some function or other, but whether that function *has the proper outcome*. Simply saying 'we have made a plan and performed the outputs from it' does not address whether those outputs have any relevant bearing on the consequences. And when we are dealing with safety, we must address those consequences to ensure that our plans, and the output of those plans, are actually making things safer.

Secondly, the introduction of risk profiling appeared somewhat odd. In the guidance, risk profiling is described as

- the nature and level of the risks faced by your organisation
- the likelihood of adverse effects occurring and the level of disruption
- the costs associated with each type of risk
- the effectiveness of the controls in place to manage those risks.

Elsewhere in the guidance, however, where it states that an organization should 'identify its risk profile', this is explained as follows.

- Assess the risks, identify what could cause harm in the workplace, who it could harm and how, and what you will do to manage the risk.
- Decide what the priorities are and identify the biggest risks.

The reader may readily realize that this guidance is very similar to the guidance given by the HSE in *Five steps to risk assessment* (HSE, 2011), which all students of health and safety will recognize as IDERR.

- Identify the hazards.
- Decide who might be harmed and how.
- Evaluate the risks and decide on precautions.
- Record your findings and implement them.
- Review your assessment and update if necessary.

Note the exclusion of the word 'hazard' in the definition of risk profiling. Interestingly, in the section on risk profiling in HSG65, it states that 'in some businesses the risks will be tangible and immediate safety hazards…' which curiously seems to imply that a hazard and a risk are the same thing. In some professions these two labels are indeed used interrelatedly, but in health and safety they have always meant two distinct things. The HSE describe them as