Reducing the dangers of dock work in the UK, 1899-1939: how past approaches could prevent future tragedies

Dr Guy Collender

Hindsight Perspectives for a Safer World
Report Series: No.2023.2

About the Hindsight Perspectives reports series

Hindsight Perspectives for a Safer World is a collaboration between History & Policy at King's College London and Lloyd's Register Foundation. We work with professional historians researching maritime topics to provide historical context and insight to contemporary maritime safety challenges. The goal of the project is to deepen understanding of these issues and provoke creative solutions in an era of huge technological and organisational change for the industry. Working with the materials in Lloyd's Register Foundation Heritage and Education Centre (HEC) as well as wider sources, historians produce Hindsight Reports within the scope of the challenges of the Lloyd's Register Foundation.

About the author

Dr Guy Collender gained his PhD on the history of the Port of London (1900-1939) from Birkbeck, University of London. His ongoing research focuses on the varied and interrelated themes associated with global ports, including trade, propaganda, politics and labour relations. He is currently an Associate Tutor at Birkbeck, where he teaches undergraduates the Rise of the Modern State module. Guy is also an Associate Member of the Faculty of History at the University of Oxford, where he works full-time as a fundraiser for the Humanities Division. Guy is a keen kayaker and paddleboarder, and is often found out on the Thames.

Correspondence address: guy.collender@history.ox.ac.uk

Cover image based on: Dock workers in Bristol, England, 1940. Ministry of Information Photo Division Photographer, Public domain, via Wikimedia Commons.

Published May 2023

Copyright ©Lloyd's Register Foundation, 2023.
Lloyd's Register Foundation is a Registered Charity (Reg. no. 1145988) and limited company (Reg. no. 7905861) registered in England and Wales, and owner of Lloyd's Register Group Limited.

Registered office: 71 Fenchurch Street, London EC3M 4BS, UK
T +44 20 7709 9166
E info@lrfoundation.org.uk
www.lrfoundation.org.uk

Contents

Executive summary

- Dock[1] workers around the world continue to suffer from accidents, sometimes with fatal consequences, in the workplace. This includes countries where health and safety is relatively highly regulated, such as the UK and Belgium.
- In 2011 the UK government began to classify docks as lower risk industrial workplaces, as part of a wider agenda to cut health and safety 'red tape', resulting in lower inspection rates.
- In recent years, official statistics on fatal injuries have been broadly aggregated and difficult to cross-reference, which makes it hard to ascertain specifics of fatal accidents and consider prevention methods.
- This report shows how studying accidents and safety initiatives in the past can help generate guidance to improve safety today. The focus is on the UK docks from 1899 to 1939 – a period which witnessed a substantial reduction in dock deaths from 115 per year to 69 per year.
- Historic statistics assessed in this report were much more granular than today, with a level of detailed categorisation that resulted in a few fatal accidents per category per year (among a larger number of non-fatal accidents). This allowed for various enquiries and review bodies, both national and based in certain locations, to consider prevention methods and identify hazards.
- The period saw increasingly detailed legislation targeting accident rates across all industries, beginning with the Factory and Workshop Act 1895 and culminating in the detailed Dock Regulations of 1934 and the Factories Act 1937.
- There were specific investigations and enquiries into the problems encountered while working at, or passing through, docks, and periodic discussion of the issues in Parliament and in Whitehall. Reducing the numbers of accidents and fatalities was a matter of concern to the government, especially during the labour shortages following the First World War.
- This report draws three main lessons from the period 1899-1939:
  - Recording the specifics of workplace deaths is important. Precise and comprehensive breakdowns enabled the authorities to identify problems and trends and suggest solutions.
  - During the period of improvement inspectors conducted regular visits to the docks to identify hazards and suggest ways of mitigating them – a proactive approach, as opposed to the current focus on reactive inspections following an accident.
  - A notable national initiative was the Home Office Industrial Museum intended to educate employers, trade unions and the public about safety measures. A similar set of exhibits today (including online to reach a global audience) setting out the history of safety improvements on UK docks could be an appropriate goal of the Heritage and Education Centre at Lloyd's Register Foundation and similar organisations.

1 Note on the text: Docks, wharves and quays were, and still are, frequently grouped together as one category of workplace, with 'docks' used as shorthand to cover all these structures (eg Docks Regulations 1934).

Introduction

Working at the docks, or even passing through them, is a risky business, and always has been. Although the nature of cargo and how it is handled have changed dramatically in the last 100 years, largely due to the arrival of the shipping container, basic similarities remain. Loading and unloading cargo is inherently dangerous in an environment full of hazards: heavy machinery, large ships, confined spaces, and deep water. In recent years, dock workers have continued to suffer injuries and even die because of workplace accidents in the UK and around the world. In December 2018, the International Transport Workers' Federation highlighted the death of more than 50 dock workers globally during the previous 12 months[2].

This report examines the risks of dock work and dock safety measures in both contemporary and historical contexts. In particular, it:

- Focuses on accidents, policies, practices and laws relating to docks and ports in the UK
- Analyses how the authorities have altered their perception of risk on the docks, and the consequences of these changing attitudes
- Charts how fatal accidents on docks in the UK fell from 115 in 1899 to 69 in 1939, and offers explanations for this reduction
- Shows how the study of dock accidents and safety initiatives in the past can help to provide guidance to improve safety today.

The classification of the docks as one of the 'dangerous trades' in the Factory and Workshop Act 1901 was a turning point, and was followed by more and more detailed regulations for the docks in 1904, 1925 and 1934. This trajectory of increasing regulation differs from more recent thinking of the UK government, which downplayed the risks associated with docks in 2011 when it regarded them as 'lower risk areas'[3]. As a result, there are fewer inspections. Accidents today, across all industries, are only recorded in broad categories. Such limited disaggregation of data relating to fatal injuries weakens the value of statistics for improving safety in all industries, not just on the docks.

Workplace accidents and deaths have plummeted by a welcome 85% over the last century, falling from 843 deaths (16 per week) in 1922 to 123 (2 per week) in 2021-22 in all workplaces in the UK (see figures 1 and 2 on p. 7, and table 1 on p. 10 below). However, 123 deaths in a single year in a developed economy with advanced safety equipment is still tragic and could be mitigated. There is no room for complacency.

2 International Transport Workers' Federation, Deaths on docks drive urgent plans to address safety, https://www.itfglobal.org/en/news/deaths-on-docks-drive-urgent-plans-to-address-safety, Accessed 26 July 2022.

3 Department for Work and Pensions, *Good Health and Safety, Good for Everyone*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/66745/good-health-and-safety.pdf , 2011, p. 9, Accessed 27 July 2022.

This report asks what lessons can be learned, and suggests that the health and safety profession and commercial stakeholders consider how certain policies of the past could help improve safety today on the docks in the UK and further afield. It draws two specific conclusions about practices in the period concerned:

(1) there was careful recording of the specifics of all workplace deaths (and avoidance of limited categorisation)

(2) there were increasing numbers of proactive health and safety inspections, which contributed to better monitoring and accident prevention.

This report also explores a precedent for promoting historical improvements in workplace safety within a museum context, namely the creation of the Home Office Industrial Museum in 1927. It suggests that this may once again be a useful tool today, especially if it is accompanied by a digital resource accessible to stakeholders and safety professionals globally.

Above all, this report is a powerful reminder that progress is not necessarily linear or inevitable – it constantly needs to be scrutinised and revisited, and gathering good evidence is always a prerequisite to establishing good policy.

Boxed oranges being moved via crane at the London Docks. Photograph Albert Gravely Linney, 1932.

Note the ropes and chains that make up the hoist and would need to be kept in good repair, as well as the necessity of carefully securing multiple items in this pre-containerisation period.

© Museum of London.

Part 1 – The contemporary context

Recent deaths on the docks

According to media reports, a truck driver called John Burns collected a consignment of rice from a container ship docked at Liverpool on 25 October 2015. He steered his vehicle into a storage shed at Garston dock. He was never seen alive again. When he and his tipper truck failed to emerge, the shed was searched. Mr Burns was found buried beneath 30 tonnes of brown rice. He had suffered 'significant leg injuries, blunt force chest injuries, and mechanical asphyxia'[4]. The subsequent investigation by the Health and Safety Executive (HSE) concluded that Associated British Ports Holdings Ltd – a port operator – had failed in its duty to conduct an appropriate risk assessment and properly monitor the tipping process. The port operator pleaded guilty to breaching the Health and Safety at Work Act 1974; it was fined £1.8 million and ordered to pay costs of £31,694 at the conclusion of the court case at Liverpool Crown Court on 8 October 2021[5].

The tragic and preventable accident that led to the death of Mr Burns was not a one-off in the recent history of dock work. Also in 2015, three experienced dockers died in Antwerp, Belgium, upon entering a ship's hold to unload coal; they were understood to have inhaled toxic gases[6]. Eight employees died in UK ports from Sunderland to Tilbury in separate incidents during a three-month period from late 2011 to early 2012[7].

The tragic and preventable accident … was not a one-off in the recent history of dock work

UK government's downplaying of risk

Not long before this spate of fatal incidents, in March 2011 the UK government grouped docks under the heading 'lower risk areas' in its classification of industrial workplaces, alongside the rest of the 'transport sector' (including air and road haulage) and 'low risk manufacturing' (including textiles, footwear, light engineering, and electrical engineering)[8]. This was the lowest risk of three categories (the others, starting with the most serious, being 'comparatively high risk areas' and 'areas of concern')[9]. In 'lower risk areas',

4 Health and Safety Executive, £1.8m fine after Merseyside worker fatally injured tipping 30 tonnes of brown rice, https://cqms-ltd.co.uk/1-8m-fine-after-merseyside-worker-fatally-injured-tipping-30-tonnes-of-brown-rice/, Accessed 17 April 2023..

5 Loc. cit.; Lee Grimsditch, 'Dock worker crushed to death after 30 tonnes of brown rice fell on top of him', Daily Mirror, 12 November 2021, www.mirror.co.uk/news/uk-news/dock-worker-crushed-death-after-25445384, Accessed 26 July 2022.

6 European Transport Workers' Federation, ETF expresses condolences over death of Belgian dockers, https://www.etf-europe.org/etf-expresses-condolences-over-death-of-belgian-dockers/, Accessed 26 July 2022; Offshore Energy, Three Dockworkers Die in Antwerp, https://www.offshore-energy.biz/three-dockworkers-die-in-antwerp/, Accessed 26 July 2022.

7 Green, Andy, 'Death on the Docks', Hazards Magazine, https://www.hazards.org/deadlybusiness/dockdeaths.htm , Accessed 26 July 2022.

8 Department for Work and Pensions, *Good Health and Safety, Good for Everyone*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/66745/good-health-and-safety.pdf, 2011, p. 9, Accessed 27 July 2022.

9 Loc. cit.

'proactive inspection' was no longer deemed necessary; part of the effort to reduce such inspections by the HSE by 'one third (around 11,000 inspections per year) through better targeting'[10]. This permissive approach was reinforced by the government's plans 'to begin a major cut back of health and safety red tape'[11]. The intention to reduce health and safety regulations by more than a half was announced in November 2011[12]. This was in response to the publication on the same day of *Reclaiming Health and Safety for All*[13] – a government-commissioned review conducted by Ragnar Löfstedt, Professor of Risk Management and Director of King's Centre for Risk Management, King's College London. The Löfstedt Review recommended consolidating regulations to reduce their number by about 35%[14]. In an era of 'anti-regulatory initiatives', Löfstedt 'emerged to play a crucial legitimising role', according to Phil James, Professor of Employment Relations at Oxford Brookes University, Steve Tombs, Professor of Sociology at Liverpool John Moores University, and David Whyte, Reader in Sociology at the University of Liverpool[15]. The three academics questioned the independent status of the Review and maintained that it did:

> …little more than perpetuate many of the myths surrounding health and safety regulation that the TUC and the wider hazards movement have consistently sought to dispel…[16]

Moreover, they argued that the Review's conclusions were misrepresented by the government and were deployed to support its own agenda against 'regulatory protection'[17]. While the Review deemed certain regulations to be unnecessary, particularly regarding self-employed people, it did consider the 'general sweep of requirements set out in health and safety regulations' as 'broadly fit for purpose'[18]. However, the government referred to the Review to justify its ambitions to cut health and safety regulations. On 6 March 2012, at a conference organised by the Institution of Occupational Safety and Health (IOSH), Löfstedt criticised Prime Minister David Cameron's approach to health and safety as 'not helpful'[19].

10 Loc. cit.

11 Department for Work and Pensions, *Press Release: Report Calls for One Million Self Employed to be Exempt from Health and Safety Law*, https://www.gov.uk/government/news/report-calls-for-one-million-self-employed-to-be-exempt-from-health-and-safety-law, 28 November 2011, Accessed 30 July 2022.

12 Loc. cit.

13 Löfstedt, Ragnar E., *Reclaiming Health and Safety for All: An Independent Review of Health and Safety Legislation*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/66790/lofstedt-report.pdf, Cm. 8219, 2011.

14 Ibid., p. 4-5.

15 James, Phil, Tombs, Steve, and Whyte, David, 'An Independent Review of British Health and Safety Regulation? From Common Sense to Non-Sense', *Policy Studies*, 34:1, 2013, p. 49.

16 Loc. cit.

17 James, Tombs, and Whyte, 'An Independent Review of British Health and Safety Regulation?', 2013, p. 48.

18 Löfstedt, *Reclaiming Health and Safety for All*, p. 7.

19 Safety and Health Practitioner, PM's Approach to Health and Safety Not Helpful, Says Prof Lofstedt, https://www.shponline.co.uk/news/pm-s-approach-to-health-and-safety-not-helpful-says-prof-lofstedt/, 2012, Accessed 31 July 2022.

Deadly consequences of new approach

Critics have claimed that this trajectory towards fewer inspections and less concern for accidents on the docks has had deadly consequences.

Critics have claimed that this trajectory towards fewer inspections and less concern for accidents on the docks has had deadly consequences

Andy Green, convenor of the trade union Unite at Tilbury Docks and a member of Unite's national executive, was quoted in an article in *Hazards Magazine* in 2012[20]. He said that the government's designation of the docks as low risk meant:

> …fewer inspections and less enforcement action, and predictably the downward spiral of poor health and safety began. Except bad health and safety didn't so much begin to fall in the industry, it's plummeted.[21]

Rory O'Neill, author of the article and editor of *Hazards Magazine*, calculated in the same article that 'docks should experience no more than one death a year' if they were an average UK workplace[22]. However, given the death toll on the docks in late 2011 and early 2012, O'Neill estimated that the fatality rate for docks was 'at least five times and possibly over 20 times the UK average', depending on the employment figures used[23]. In the same article, reference is also made to the HSE's acknowledgment that the figures for docks are 'above the national all-industry average'[24]. The difficulty of 'coding' jobs (a concern identified by the HSE[25]) further complicates evaluating the problem.

The varied nature of dock work and also dock accidents makes detailed categorisation hard and unwieldy, but nuances are lost when it is not attempted. The limited disaggregation of fatal accidents remains a problem today. According to the HSE's latest annual report on fatal injuries, 123 workers were killed in work-related accidents in 2021-22[26]. However, this figure is only divided into eight categories (see figure 1 overleaf).

The transportation and storage category is the fourth worst category, accounts for 16 deaths, and includes docks, aviation and road haulage. However, the absence of more granular detail means that this national overview is unhelpful when trying to ascertain the particulars of specific dock accidents and how to prevent them in future. The fatalities are also displayed according to the main kind of accident (see figure 2 overleaf).

20 *Hazards Magazine* describes itself as a 'union-friendly magazine', https://www.hazards.org/abouthazards/index.htm, Accessed 30 January 2023.

21 O'Neill, Rory, 'Safety in the Dock', *Hazards Magazine*, 117, https://www.hazards.org/deadlybusiness/docks.htm, 2012, Accessed 30 July 2022.

22 Loc. cit.

23 Loc. cit.

24 Loc. cit.

25 Loc. cit.

26 Health and Safety Executive, *Workplace Fatal Injuries in Great Britain, 2022*, https://www.hse.gov.uk/statistics/pdf/fatalinjuries.pdf, 2022, p. 4.

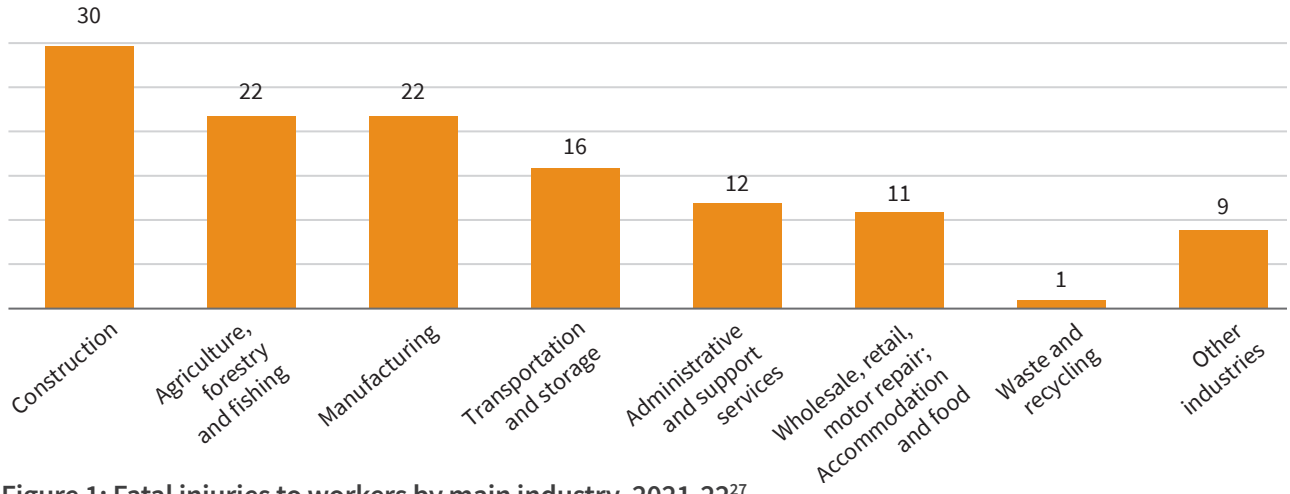

Figure 1: Fatal injuries to workers by main industry, 2021-22[27]

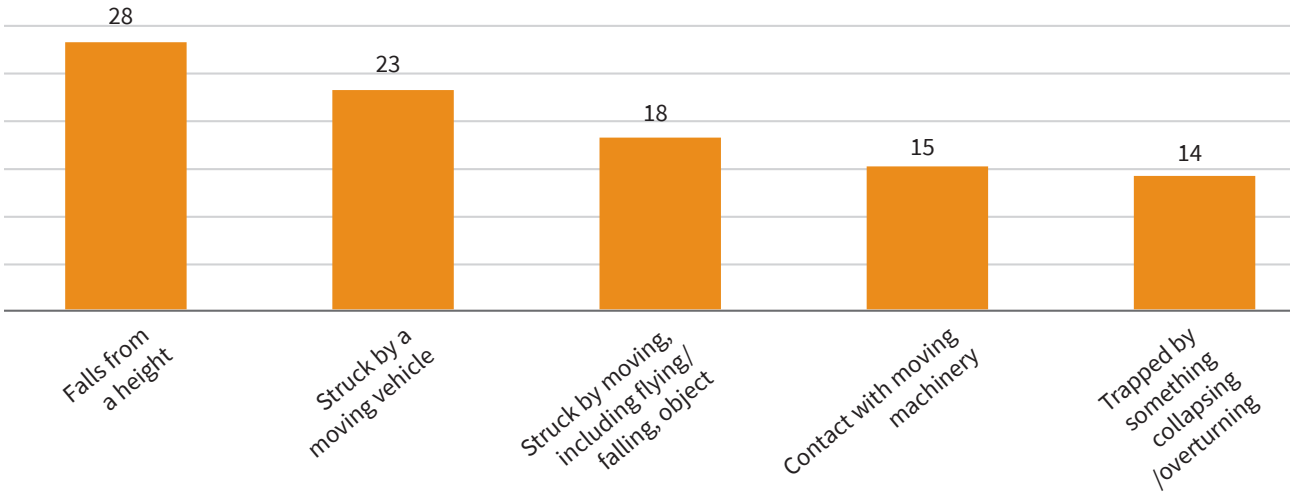

Figure 2: Main kinds of fatal accidents for workers, 2021-2228

Note: Chart above shows all accident kinds accounting for 10 or more deaths in 2021-22.

However, as there is no cross-referencing between both sets of data (figure 1 and figure 2), they are of limited use. It would be very helpful to know, for example, how many deaths are caused in each category (construction, transportation and storage etc) by each kind of accident (falls from a height, struck by moving vehicle etc). Above all, figure 2 is incomplete as it only displays accident kinds accounting for 10 or more deaths (amounting to 99, rather than the total death toll of 123).

27 Loc. cit.

28 Ibid., p. 5.

More data is available from the tabular appendices produced by the HSE, but the data for fatal injuries is still not disaggregated to the extent that it is helpful in relation to the docks. Fatal injuries within transportation and storage are divided into five sub-categories for 2021-22, including 'water transport', which only relates to injuries arising from shore-based services and excludes incidents reported under merchant shipping legislation[29]. Ports and docks are not listed.

The similarity of much modern dock work to tasks elsewhere complicates matters. Crane work, HGV driving, and all equipment for moving heavy loads – at the heart of modern dock activities – are also essential in other workplaces. On the other hand, mooring operations are only associated with water.

The Health and Safety Executive data represents the most readily available complete data across all sites available to the public, researchers and policy makers for analysis. More detailed data may exist elsewhere, such as within operating companies themselves, and also may be lodged with specialist membership organisations such as Port Skills and Safety, which has data on health and safety performance among member organisations going back to 2018. This is not readily available to non-members for analysis[30]. This situation of diffuse sources and levels of access is a noticeable contrast to the way data collection and publication was handled during the period under discussion.

29 The sub-categories and figures for 2021-22 are as follows: 'Land transport and transport via pipelines 12; Water transport 0; Air transport 1; Warehousing and support activities for transportation 3; Postal and courier activities 0. Health and Safety Executive, RIDIND-RIDDOR Reported fatal and non-fatal injuries in Great Britain by detailed industry, 2021-22, Table 1, ridind.xlsx (live.com), Accessed 30 January 2023.

30 Communication with Port Skills and Safety, 24 April 2023.

Part 2 – Insights from history

Historical treatment of accident statistics

Such current safety and statistical challenges are concerning, which is why it is important and relevant to turn to history for guidance, insights and examples of life-saving policy developments. For simplicity, let's start with a statistical and presentational comparison with 100 years ago, when the equivalent of figures 2 and 3 from the HSE's *Workplace Fatal Injuries in Great Britain, 2022* report was table 1 below from the *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1922*.

The difference in the level of detail included in figures 1 and 2, and table 1 (overleaf), is striking, as is the different order of magnitude in terms of deaths recorded. The breakdown of accidents (fatal and non-fatal) within 64 categories (divided into industries and sub-industries) for 1922 was exhaustive, especially when compared with limited data for the eight categories for 2021-22. Fatal accidents were much more prevalent in 1922: there were 843 deaths in the workplace 100 years ago (16 per week), compared with 123 in 2021-22 (2 per week). Undoubtedly, this largely explained why so much more attention was devoted to recording the death toll in 1922. The stakes were higher then as workplaces were far more deadly than today. Inspectors 100 years ago had more work to do and there was greater potential for their inspections and enforcement action to make a difference given the regularity of fatal accidents.

Tierces of tobacco being piled in a bonded warehouse by means of an overhead electric crane. From *Then and Now* by Port of Manchester Warehouses Ltd, 1921. The company prided itself on the modern labour saving devices used in its warehouses 'although this marketing brochure does not mention any related improvements to safety

Internet Archive Book Images, No restrictions, via Wikimedia Commons

Industry.	Adults.		Young Persons.		All Ages.		Total.
	Males.	Females.	Males.	Females.	Males.	Females.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Textile	**4,106**[12]	**3,151**[7]	**959**[1]	**1,076**[2]	**5,065**[16]	**4,227**[9]	**9,292**[25]
Cotton	2,410[22]	1,760[1]	636[3]	657	3,046[25]	2,417[1]	5,463[26]
Wool, Worsted, Shoddy ..	1,162[16]	850[6]	202[1]	224[1]	1,364[17]	1,074[7]	2,438[24]
Silk	120	42	13	16	133	58	191
Lace	44[1]	12	3	5	47[1]	17	64[1]
Hosiery	85	129	17	74	102	203	305
Flax, Hemp, Jute	210[2]	313	71	74	281[2]	387	668[2]
Other	75[1]	45	17	26[1]	92[1]	71[1]	163[3]
Non-Textile	**64,995**[577]	**4,447**[7]	**9,783**[33]	**2,310**[6]	**74,778**[610]	**6,757**[13]	**81,535**[623]
Quarries, Pitbanks, Clay, Stone and Cement	1,737[24]	84	173[2]	16	1,910[26]	100	2,010[26]
Metal—							
Extracting and Refining ..	2,134[32]	3	57[2]	1	2,191[34]	4	2,195[34]
Conversion, including Rolling Mills and Tube making ..	11,567[77]	371	1,822[4]	236[1]	13,389[81]	607[1]	13,996[82]
Founding	4,290[30]	46	687	15	4,977[30]	61	5,038[30]
Galvanizing, Tinning, Plating and Enamelling	619[1]	31[1]	88	11	707[1]	42[1]	749[2]
Engine (not Loco.) Building, Transmission Machinery..	1,874[12]	5	274[1]	5	2,148[13]	10	2,158[13]
Boiler making, Constructional Engineering ..	1,839[21]	6	334	—	2,173[21]	6	2,179[21]
Electrical Engineering ..	1,297[7]	128	293[1]	61	1,590[8]	189	1,779[8]
Locomotive Building ..	3 285[12]	3	390	1	3,675[12]	4	3,679[12]
Railway and Tramway Carriages, Motor and other Vehicles	4,849[21]	150	840[2]	44	5,689[23]	194	5,883[23]
Machine making—							
Agricultural	229	2	49	—	278	2	280
Machine and other Tools ..	544[1]	33	149	15	693[1]	48	741[1]
Textile	1,109[1]	33	258	17	1,367[1]	50	1,417[1]
Other..	1,930[13]	50	448[1]	15	2,378[14]	65	2,443[15]
Ordnance and Munitions of War	733[6]	15	40	11	773[6]	26	799[6]
Hydraulic Ventilation and Pneumatic Engineering(other than above)	260[2]	5	39	2	299[2]	7	306[2]
Cutlery	59[1]	24	25	4	84[1]	28	112[1]
Light Metal Trades	2,196[18]	695[4]	565[4]	45[1]	2,761[22]	1,145[5]	3,906[27]

Table 1: All reported accidents, 1922: Industry, age, sex[31]

Note: The principal numbers are the totals of fatal and non-fatal accidents; the small figures at the right are those of fatal accidents only.

31 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1922*, Cmd. 1920, 1923, p. 144.

Industry.	Adults.		Young Persons.		All Ages.		Total.
	Males.	Females.	Males.	Females.	Males.	Females.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Non-Textile—*continued.*							
Shipbuilding	6,913[69]	8	821[8]	3	7,734[77]	11	7,745[77]
Aircraft	90	1	14	1	104	2	106
General Woodwork—							
Builders' Materials, Saw Milling	1,993[11]	22	368	17	2,361[11]	39	2,400[11]
Box and Packing Case making	195[2]	17	70	15	265[2]	32	297[2]
Brush making	57	22	13	7	70	29	99
Other Wood Working	284[1]	5	67	1	351[1]	6	357[1]
Other Builders' Materials	103[2]	6	16	2	119[2]	8	127[2]
Furniture—Cabinet Making	500[7]	37	129[1]	21	629[8]	58	687[8]
Mattress making; Bed, Table linen, Furniture hangings, making up of	23	16	10[1]	7	33[1]	23	56[1]
Linoleum and Oilcloth	96[1]	9	6	—	102[1]	9	111[1]
Pottery	338[2]	96	47	71	385[2]	167	552[2]
Glass	975	73	243	37	1,218	110	1,328
Chemicals, Paints, Colours and Varnish, Animal Charcoal and Glue making	2,212[15]	73	81	37	2,293[15]	110	2,403[15]
Tanning, Currying, Leather Goods	382[3]	47	74	31	456[3]	78	534[3]
Textile Printing, Bleaching and Dyeing	969[11]	96	109[2]	35	1,078[13]	131	1,209[13]
Laundries	74[1]	103	8	43[1]	82[1]	146[1]	228[2]
Wearing Apparel	753[2]	397	235	227[1]	988[2]	624[1]	1,612[3]
Rubber Trades	451[3]	66	39[1]	23	490[4]	89	579[1]
Paper making, &c.	950[12]	105[1]	156[1]	43	1,106[13]	148[1]	1,254[14]
Letterpress, Litho. Printing, Photography	887[4]	354[1]	232	249	1,119[4]	603[1]	1,722[7]
Food—							
Milling, &c.	390[7]	28	27	8	417[7]	36	453[7]
Bakeries	248[3]	50	43[1]	25	291[4]	75	366[4]
Sugar Refining	258[3]	38	6	5	264[3]	43	307[3]
Sugar Confectionery, Groceries, &c.	527[7]	288	97	212	624[7]	500	1,124[7]
Preserved Meat, Fish and Fruit	158	166	24	41	182	207	389
Other	175[3]	51	12	9	187[3]	60	247[3]
Drink—							
Alcoholic	814[17]	192	82	33	896[17]	225	1,121[17]
Non-Alcoholic	47[1]	76	8	17	55[1]	93	148[1]
Tobacco and Matches	161	88	22	28	183	116	299
Oilcake, Oil Refining and Extracting	616[7]	11	30	—	646[7]	11	657[7]
Soap, Candles, Starch, &c	279[1]	76	32	56	311[1]	132	443[1]
Scientific, Surgical and Dental Instrument, &c., making	53	15	21	7	74	22	96
Watches, Clocks, Jewellery, &c.	85	56	16	66	101	122	223
Articles for Sports, &c., Musical Instruments	110	12	28	6	138	18	156
Gas Works	1,621[27]	1	32	—	1,653[27]	1	1,654[27]
Electric Generating Stations	547[19]	—	7	—	554[19]	—	554[19]
Other Industries	110[5]	62	27[1]	23[2]	137[6]	85[2]	222[8]
Places under ss. 104–106	6,987[163]	105	61[2]	6	7,048[165]	111	7,159[165]
Docks and Warehouses, Sec. 104	5,863[91]	10	38[1]	1	5,901[95]	11	5,912[95]
Buildings, Sec. 105	997[49]	95	23[1]	5	1,020[70]	100	1,120[70]
Railways, Sec. 106	127	—	—	—	127	—	127
	76,088[782]	7,703[14]	10,803[33]	3,392[8]	86,891[821]	11,095[42]	97,986[863]

Table 1 contd: All reported accidents, 1922: Industry, age, sex[32]

Note: The principal numbers are the totals of fatal and non-fatal accidents; the small figures at the right are those of fatal accidents only.

32 Ibid., p. 145.

In terms of the docks (the main focus of this report), the national breakdown of fatal and non-fatal accidents in 1922 was comprehensive (see table 2 overleaf). In the same report, a detailed analysis of dock accidents in the Port of London ran to three pages, with the type of accidents listed under six headings and 90 sub-headings to account for 1,588 accidents, including 18 fatal incidents[33]. The most lethal type of accident – 'Persons slipping and falling' – accounted for 290 accidents in total, including nine deaths, and was sub-divided into 22 categories, such as 'off ladder', 'fall from grain elevator', 'avoiding swinging load', and 'on ice on deck'[34]. This degree of detail helped generate an excellent evidence base to guide accident prevention efforts. Mr Shaxby, the inspector in charge of preparing the statistics for the Port of London, highlighted the importance of eliminating 'hazardous practices' (slips and falls, being struck by falling objects etc) as these accounted for many more accidents than 'deficiencies in safeguards or defects in plant or machinery'[35].

The section about the docks in the main report for 1922 continued by urging:

> …better supervision and organisation of work by the employers and their representatives, and by the exercise of greater care on the part of workmen, who often run quite unnecessary risks[36].

Dangerous practices were identified and criticised, including:

> …workmen crowding on ladders and gangways, taking dangerous short cuts using plant in an unsafe way and failing to use the safeguards provided[37].

However, the overall assessment was still encouraging and recognised unprecedented progress:

> The Inspectors' reports show that the Regulations are well observed on the whole, and that the standard of compliance was probably higher in 1922 than in previous years[38].

By 1922, dock deaths were falling from their pre-war peak (see figure 3 page 14). This general downward trajectory continued throughout the 1920s and 1930s. Only 69 fatal accidents were recorded in 1939 compared with 115 in 1899 – the beginning of the period addressed here.

33 Ibid., p. 33-35. The six headings were 'Machinery, gear, plant; Persons slipping and falling; Struck by object falling; Pinch, cut, scratch; Strain, sprain, rupture; and Other'.

34 Ibid., p. 33.

35 Ibid., p. 35.

36 Ibid., p. 36.

37 Loc. cit.

38 Ibid., p. 37.

(Maritime Districts of Great Britain).

The principal numbers are totals (fatal and non-fatal), small figures at the right are fatal cases only.

Regulations concerned.	Total Cases.	Due to Breach
1. Quay edges	2	—
Footways over dock gates, etc.	1	—
2. Immersions, etc.—		
From ships	1	—
,, barges and crafts	4	—
,, cargo stages, etc.	4	—
,, shore	3	—
,, other	3[1]	—
Fall into barge alongside	5	1
Fall on to quay	7[2]	—
3. Lighting ashore	—	—
4. Access from ship to shore	19[1]	8[1]
5. Access to other vessel	2	—
6. Ladders (falls to hold)	29[1]	2[1]
7. Lighting on board	2	1
8. Thwartship beams, fore and afters and tank tops—		
(*a*) Lifting	21	—
(*b*) Defective beams and hatch covers	6[2]	1
(*c*) Beams or hatch covers unshipped	18[3]	—
(*d*) Other	15	—
9. Defective winch or crane	5[2]	1
Breaking of chains	6[1]	—
,, other gear	35[3]	2[1]
,, iron bands round bales, etc.	20	—
Gear not properly secured	17[1]	—
10. Winches and cranes	1	—
Cogwheels	5	1
Chain-gearing	2	—
Friction gearing	1	—
Other machinery	14[1]	2
11. Locking arrangements	—	—
12. Collapse of crane	7[3]	—
13. Fencing of crane platform	4[1]	—
Means of access to platform	4	—
14. Exhaust steam	—	—
15. Safe load exceeded	3[2]	3[2]
Entanglement in slings, snorters, gear, etc.	110[1]	—
Struck by gear or load actually suspended	479[3]	2
Fall of set or part of set	210[8]	—
Other falls of goods or gear		
(*a*) On ship	498[2]	—
(*b*) On shore	342	—
16. Boys under 16 as drivers and signallers	—	—
17. Clear passage to quay edge	—	—
18. Deck and cargo stages—		
(*a*) Falls from	15	1
(*b*) Collapse, etc., of unsafe, etc.	4	—
(*c*) Steep stages	—	—
(*d*) Slippery stages	5	—
(*e*) Slippery decks	14	—
(*f*) Coalers overside platform	—	—
19. Fencing or securely covering hatchways	2	1
Falls into hold—		
(*a*) From deck	96[8]	8[2]
(*b*) From barges deck to barges hold	20[1]	—
(*c*) Through bunker hatchways	6[1]	—
Hatch covers as stages	—	—
20. Landing platforms—		
(*a*) Insecure	1	1
(*b*) Falls from	9	—
Personal falls—		
(*a*) Ship	276[3]	3
(*b*) Shore	295[2]	—
Misadventure, *e.g.*, strain, scratch, jammed, etc.	2139[14]	—
Getting barge into position alongside	11	—
Lift accidents	10[1]	—
Miscellaneous	241[6]	—
Total	5049[74]	38[7]

Table 2: Dock accidents, 1922[39]

Note: The principal numbers are the totals of fatal and non-fatal accidents; the small figures at the right are those of fatal accidents only.

39 Ibid., p.32.

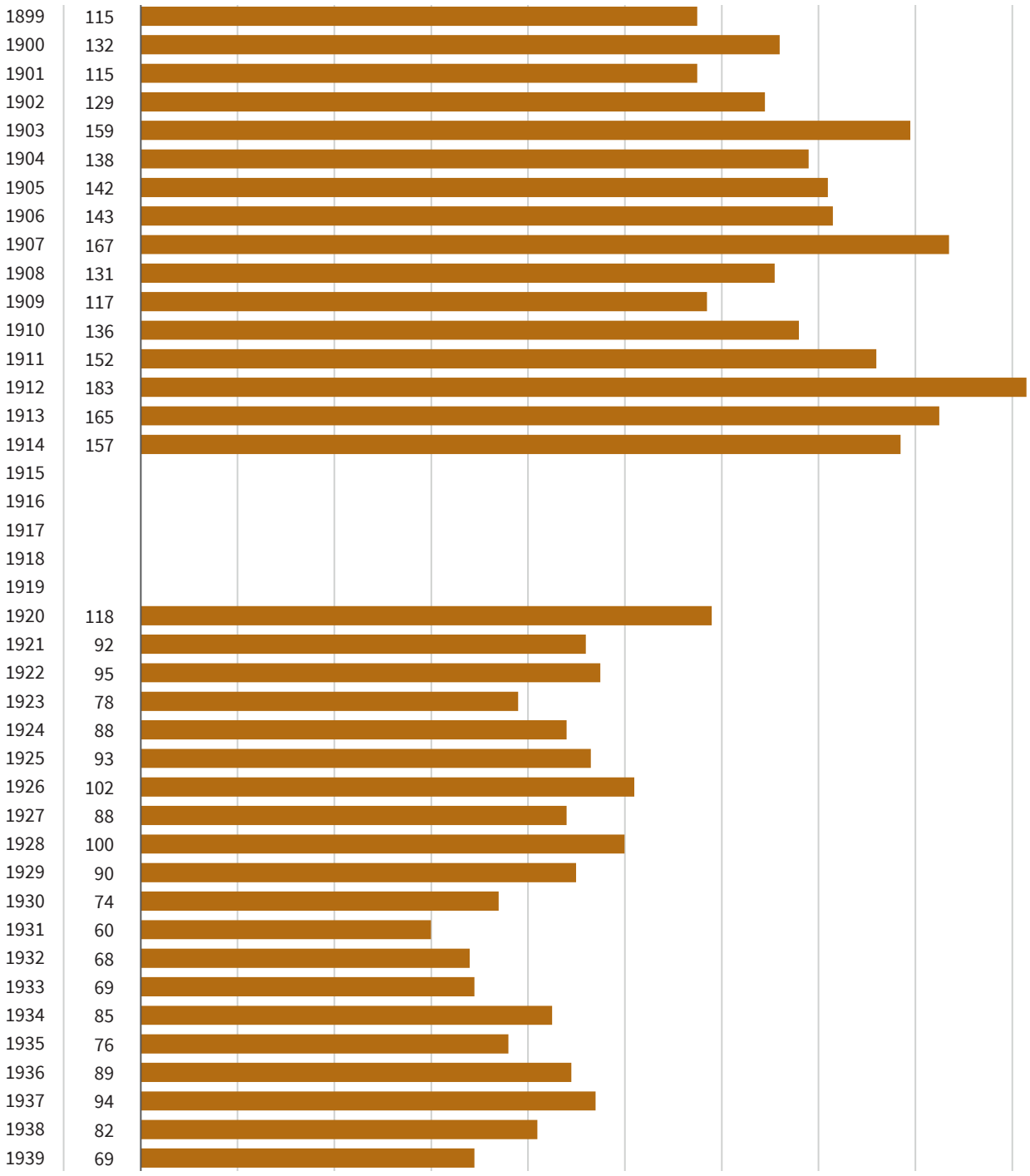

Figure 3: Fatal accidents in docks, wharves and quays, 1899-1939

Note: No figures were collected in 1915, 1916, 1917, 1918, and 1919.

This study, therefore, seeks to explain these statistics. Why, and how, were dock deaths reduced over the 40-year period from 1899 to 1939? What lessons can be learned from the design and implementation of safety policies and practices? And how can these insights be applied to the docks today to save lives?

This study... seeks to explain these statistics. Why, and how, were dock deaths reduced...? What lessons can be learned...? And how can these insights be applied to the docks today to save lives?

To address these questions, it is important to understand the challenges and nature of dock life at the turn of the twentieth century. Working at the docks, or even passing through them, was a perilous business. Loading and unloading cargo in a confined space with heavy machinery was always dangerous. Accidents, including drownings and falling into the ship's hold, were commonplace. In 1899 there were 115 fatalities and 4,591 non-fatal injuries in docks across the UK[40]. Such figures were consistently high for the next few years[41]. John Burns, MP for Battersea and one of the leaders of the Great Dock Strike in 1889, raised concerns in the House of Commons in June 1901. He invited the Home Secretary to visit Poplar Hospital in East London to see the four accidents per hour mainly linked to the docks and riverine industries and said such sights would show 'why the dock industry should be registered as a dangerous trade'[42].

The appalling loss of life and life-changing injuries led to concerted efforts to improve conditions onboard ships and on the docks. Progress was slow and painstaking, and followed a familiar trajectory (in keeping with other developments in the port industry): an investigation of the problem preceded lengthy consultation with a multitude of stakeholders, legislative action was eventually taken, and improvements were made, although the extent of their impact was questioned by some.

The dangers of dock life

Working conditions in docks, wharves, quays and warehouses were officially regulated for the first time in the late nineteenth century when they became subject to the Factory and Workshop Act 1895. The Act obliged employers to ensure workplaces were clean, machinery was safe, and certain cases of industrial poisoning, including anthrax and arsenic, were notifiable for the first time. It was the latest in a succession of Victorian acts designed to improve working conditions, particularly for children, following the pioneering Factory Act 1833, which established a factory inspectorate and banned work for children under nine. Once included in this legal framework, dockside working conditions were increasingly enumerated and scrutinised.

40 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1903*, HMSO, London, Cd. 2139, 1903, p.188.

41 Loc. cit.

42 HC Deb 17 June 1901 vol. 95 cols. 651-2.

Sir Matthew White Ridley, Conservative Home Secretary from 1895 to 1900, was concerned by the reports from inspectors following their visits to docks, wharves and quays, and he commissioned a special inquiry into the causes of such accidents and how they could be prevented. Factory inspectors James Maitland and Sydney Eraut carried out this investigation by visiting many of the most important ports in the UK, including London, Liverpool, Bristol and Southampton, and they published their findings in 1900[43]. They identified five causes of accidents. These were: falls (including into the ship's hold, into the water, and falls of goods being hoisted); accidents from machinery in motion (including limbs or clothes caught in cog-wheels, breakage of chains or ropes, and injuries caused by hoists); shunting accidents from the use of railway locomotives; fatigue due to excessive hours of work; and handling of dangerous materials (including dusty materials, and inflammable paints). The inspectors' recommendations, often relatively simple, included efficient lighting where work is underway, safe load limits to be marked on cranes, and the requirement that police and watchmen should be able to swim[44].

Port of London Authority policemen testing life-jackets by jumping into the water at the West India Docks, in around 1930. © PLA Collection/Museum of London.

43 *Annual Report of the Chief Inspector of Factories for the Year 1899*, London, HMSO, Cmd. 223, 1900, Appendix 12.

44 Loc. cit.

The report by Maitland and Eraut detailed precautions already taken to prevent accidents. Police and others employed by the London and India Joint Docks Committee at West India Dock wore cork life-belts and carried long hooked sticks to aid moving around in foggy weather, and to help people stranded in the water[45]. Similarly, the Millwall Dock Company kept cork jackets and guiding sticks for its employees at certain offices, gates, and the police station, and others on dock business could borrow them when the fog descended[46]. Dockside activity was also minimised during foggy conditions. A special notice from the Surrey Commercial Dock Company, dated 13 October 1892, read:

> The dock police have special instructions not to allow persons, during fogs, to enter the dock gates, except in cases of absolute necessity, and all persons so entering are hereby warned that it is exceedingly dangerous, and that they use the docks at their own peril and risk[47].

A nearly identical version of this sentence was included in a special notice from the London and India Docks Joint Committee, dated 7 October 1899. In addition, the Joint Committee's notice explained that posts and chains had been fitted to the 'most exposed parts of the quays' to provide protection during 'foggy weather' and 'quay edges have been whitened with a similar object'[48]. The hours of darkness also heightened dangers by reducing visibility. A notice, dated September 1899, referred to several drownings in the Millwall Docks at night[49]. Consequently, it forbade seamen belonging to ships in dock waters from being admitted into the Millwall Docks after 10pm, except in cases of 'absolute necessity'[50]. The Millwall Dock Company also warned the public against walking along the quay, advising, in a separate notice also issued in September 1899, that they should use the roads at the back of the warehouses, and, if going onboard, should only leave the road once they were opposite the ship (such caution was described as 'specially important during FOG')[51].

The report by the factory inspectors had a far greater impact than drawing attention to precautions in London. Having considered the report and its recommendations, the Home Secretary was adamant that change was needed. His views were relayed in a circular letter to dock owners and others from Henry Cunynghame, a civil servant at the Home Office. The letter, dated 28 September 1900, declared:

> …that the occupation of a dock labourer is one of the most dangerous of those that come within the scope of the Factory Acts. After considering the Report, the Secretary of State is satisfied that the matter cannot be allowed to remain in its present position, and that further and more systematic precautions are necessary to safeguard the persons engaged in this occupation.[52]

45 *Annual Report of the Chief Inspector of Factories for the Year 1899*, HMSO, Cmd. 223, Appendix 12, p.22.

46 Millwall Dock Company Fog! Fog! Fog! Notice to the Company's Employees, *Annual Report of the Chief Inspector of Factories for the Year 1899*, HMSO, Cmd.223, Appendix 12, p.31.

47 Surrey Commercial Dock Company Special Notice as to Fogs, *Annual Report of the Chief Inspector of Factories for the Year 1899*, HMSO, Cmd.223, Appendix 12, p.32.

48 London and India Docks Joint Committee Special Notice as to Fogs, *Annual Report of the Chief Inspector of Factories for the Year 1899*, HMSO, Cmd. 223, Appendix 12, p.31.

49 To seamen and others belonging to ships and craft in the Millwall Docks, *Annual Report of the Chief Inspector of Factories for the Year 1899*, HMSO, Cmd. 223, Appendix 12, p.32.

50 Loc. cit.

51 Notice, *Annual Report of the Chief Inspector of Factories for the Year 1899*, HMSO, Cmd. 223, Appendix 12, p.32.

52 Accidents in Docks, Circular Letter Addressed to Occupiers and Others from Henry Cunynghame, *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1900*, HMSO, London, 1901, Cd. 668, p.111.

Mr Cunynghame continued by instructing dock owners and others to inform the Home Secretary 'as soon as possible', and in any eventuality before the end of 1900, how they have implemented the report's recommendations, or how they proposed to do so[53].

While politicians and officials urged action and considered their policy options, accidents continued at the docks

While politicians and officials urged action and considered their policy options, accidents continued at the docks. In 1901, Mr Ireland, district inspector for East London, attended seven inquests following deaths in the docks. The fatalities were caused by a variety of accidents, including falls from a ladder and a scaffold, a falling plank from a sling, a falling block (designed for lifting), a crane hook swaying and striking a workman on the head, and the breaking of a wire rope[54]. A year later, 26 deaths – nearly half of the fatal workplace accidents in East London – occurred in the docks. The causes included drowning, lifting tackle breaking, goods falling out of slings, accidents with grab machines, and a hoist cage falling 50 feet with a worker inside[55]. Mr Ireland, writing about East London in 1902, noted that he had attended four inquests linked to ropes breaking in the docks, but none connected to failing chains. He wrote:

> …I find firms who are very careful in their use of lifting chains leave the ropes to take care of themselves, or, at any rate, leave them at the disposal of every Tom, Dick, and Harry about the dock or wharf[56].

The emphasis on corporate responsibility here is interesting. Mr Ireland did criticise carelessness on the part of the employees, but he also highlighted the importance of senior employees setting an example, and the difficulties caused by the confusion regarding responsibilities in the workplace:

> There has to be recorded the usual toll of accidents due to leaving out the little things which are often so important, a pin here or a wedge there, which it is anybody's duty to attend to, and, therefore, in many cases, nobody's. The men are happy-go-lucky and very careless, but one looks for better things from the foremen[57].

The challenges of overcoming such uncertainties and their negative consequences are familiar to health and safety professionals in the modern era. A HSE book, entitled *Reducing Error and Influencing Behaviour*, refers to 'uncertainties in roles and responsibilities' contributing to 'latent failures', which are explained as those 'made by people whose tasks are removed in time and space from operational activities, eg designers, decision makers and managers'[58]. Similarly, according to a document from the Chartered

53 Loc. cit.
54 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1901*, Part 1 – Reports, Cd. 1112, 1902, p. 24
55 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1902*, Part 1 – Reports, Cd. 1610, 1903, p. 18.
56 Loc. cit.
57 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1902*, Part 1 – Reports, Cd. 1610, 1903, p.19.
58 HSE, *Reducing Error and Influencing Behaviour*, The Stationery Office, Norwich, 1999, p. 11.

Institute of Building Academy (CIOB), 'unsafe acts and unsafe conditions' are associated with 'underlying failures', which, in turn, are caused by a number of problems, including 'unclear responsibilities' and 'poor supervision'[59].

Returning to the turn of the twentieth century, factory inspectors Maitland and Eraut also emphasised carelessness by workers on the docks (echoing the findings of their contemporary inspector Mr Ireland), but they contextualised this observation by referring to a lack of training and experience. Their further special report, which they prepared in August 1901, read:

> There is no doubt that the class of men who find employment at docks are often careless from want of any proper disciplinary training or from want of experience at their work[60].

Therefore, Maitland and Eraut regarded both employers and employees as jointly responsible for safety on the docks. They declared:

> It then behoves the employers, seeing the nature of the risks these men are required to or are liable to run, to have extra regard for the safety of these workers. At the same time, we are of opinion that, if any regulations, tending towards safety, are framed for processes carried on at docks, &c., some clause or clauses which impose a measure of responsibility on the workmen themselves will be most welcome, and will have a beneficial effect.[61]

Referring to correspondence and details of accidents received by the Board of Trade, Maitland and Eraut also highlighted how drunkenness was allegedly involved in many accidents, including drowning, particularly at the Surrey Commercial Docks. At one dock in East London they witnessed beer being sold during the dinner hour from a cask carried on a wheelbarrow[62]. In relation to drink, the inspectors' readily dismissed the dockers as 'a class of men who are all to (sic) eager for it, and who are so blind to the possible results of their folly'[63]. Yet they also clearly understood that the reality was more complicated than this stereotypical view of the drunken docker. It was not one factor, but the interaction between many – including heavy machinery, large ships, deep water, perilous weather conditions, carelessness, lack of training or experience, unclear lines of responsibility, and intoxication – that combined to create a dangerous environment.

59 Terry ap Hywel, *Accident and Incident Root Cause Analysis*, Chartered Institute of Building Academy, 2018, p. 5, https://www.ciobacademy.org/wp-content/uploads/2017/07/Root-Cause-Analysis-2018.pdf, Accessed 8 October 2022.

60 Further Special Report by Mr J.S. Maitland and Mr Sydney Eraut, HM Inspectors of Factories, *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1901*, Part 1 – Reports, Cd. 1112, 1902, p. 264.

61 Loc. cit.

62 Loc. cit.

63 Loc. cit.

Surrey Docks: A deal porter carrying deals along a plank beside the Albion Dock with the barque *Lingard* in the background, on 15th November 1930. This image and the next are two of a remarkable series of photographs taken in the Surrey Docks (and elsewhere) by Albert Gravely Linney, the first editor of the Port of London Authority Monthly Magazine[64]. It is clear from the image both how dangerous the job remained even at this late date in the period, and also how timber in particular posed the problems cited by Maitland and Eraut nearly 30 years earlier. © Museum of London.

The Surrey Commercial Docks received special attention from Maitland and Eraut for being accident-prone. This was largely because of the way sawn timber was often unloaded from ships and left in heaps hanging over the quay, making it difficult to determine the edge of the quay. Other reasons included the lack of lighting, the lack of safe gangways from the quay to vessels, and drunkenness among those frequenting the docks[65]. Summarising the views expressed in letters to the Home Office, Maitland and Eraut emphasised that the occupiers of the docks objected to taking action to protect individuals not employed by the dock companies, and having no business in the dock[66].

64 Museum of London Collections Online, A. G. Linney https://collections.museumoflondon.org.uk/online/agent/147683.html Retrieved on 6 April 2023

65 Ibid., p. 266.

66 Ibid., p. 262.

The lamentable working conditions in the docks were also discussed in Parliament during the summer of 1901. In a debate on 17 June about the Factory and Workshop Acts Amendment Bill, John Burns, Liberal MP for Battersea and one of the leaders of the Great Dock Strike of 1889, described the unnecessary suffering and waste caused by dock accidents. He said:

> Go to almost any hospital or workhouse in the East End of London, and you will find quite thirty or forty dock labourers incapable of following their employment through injuries. These strong young men are subject to these preventable accidents, and they consequently become a great burden to ratepayers. I think all honourable members will agree with me that in this matter prevention is better than cure.[67]

Burns continued:

> If the Home Secretary will come with me down to the Poplar Hospital and see for himself those four accidents per hour which are brought there mainly from the docks and riverside industries, he will see a reason why the dock industry should be registered as a dangerous trade[68].

Surrey Docks: Deal porter carrying deals along a plank into a shed in the Surrey Docks in 1932. The caption in the Museum of London's online collections goes on to state "This shot was not used for publicity purposes because it raised questions about safe working practices." The documented evidence for this has not been checked but, taking it as authoritative, this is a useful indicator of the acceptance of safety standards at this date, if not always adherence. © Museum of London.

67 HC Deb 17 June 1901 vol. 95 col. 651.

68 HC Deb 17 June 1901 vol. 95 col. 651-2.

Docks, wharves, and quays were also included under section 104 of the Factory and Workshop Act 1901. This made them subject to the Act's provisions regarding 'dangerous machines', 'accidents', 'regulations for dangerous trades', 'powers of inspectors' and 'fines in case of death or injury'[69]. In 1902, Aretas Akers-Douglas, Conservative Home Secretary, reiterated that the process of loading, unloading, moving and handling goods was dangerous. This categorisation entitled dock workers to special protections, which were then to be agreed. In 1903, deaths on the docks reached 159[70] – the highest on record until then (see figure 3 on page 14). The inspectors emphasised the urgency of improving safety in the docks. The *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1903* read:

> The processes carried on in docks, at present almost entirely unregulated, are among the most dangerous to which the Factory Act applies. The number of accidents reported from docks to the Factory Department is very large[71].

Drafting and implementing regulations

Draft docks regulations were prepared and circulated in July 1903 to 2,403 occupiers of docks, wharves, and quays (persons responsible for the management and control of these facilities, or others if these rights had been extended to them), as well as shipowners, stevedores and other interested parties. The draft regulations provoked 72 formal objections, and opposition led to deadlock. The lack of progress with the draft regulations particularly troubled one Londoner. A letter to *The Times* from C.H. Wall, of South Kensington, was published on 12 December 1903. It read:

> Not a week passes but accidents of a serious nature (and unfortunately often fatal) are recorded in the ranks of the dockers. Surely it is time an effort was made to remedy this deplorable state of things and enable the men to pursue their hazardous calling with some degree of safety.[72]

The objections and concerns led to a public enquiry, which began in London on 26 January 1904. Evidence was gathered over 26 sittings, including in other major port cities, such as Cardiff, Liverpool, and Glasgow. The Docks Regulations 1904, were agreed, and came into force on 1 January 1905, apart from two regulations for ships, which came into force at the beginning of 1908. In summary, the regulations required secure fencing around dangerous parts of a dock, wharf or quay, 'life-saving appliances' to be kept on the wharf or quay to prevent drowning, secure gangways were to be provided from ship to shore, efficient lighting was required, and machinery and chains were to be tested and checked periodically[73].

69 1 Edw. VII c. 22 Factory and Workshop Act 1901, sec. 104.

70 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1903*, Part II – Tables, Cd. 2324, 1904, p. 22.

71 Ibid., p. 188.

72 Dock Regulations, *The Times*, 12 December 1903, p.12.

73 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1904*, Part 1 – Reports, HMSO, London, Cd. 2569, 1905, p.340-344.

Having to comply with the comprehensive regulations caused unease, at first, with dock occupiers, and ensuring compliance greatly increased the workload for the inspectors. Of particular concern were regulation 2b, which required aids (such as chains or floats) at or near the surface of the water to enable persons in the water to avoid drowning, and 9, which required machinery and chains used in hoisting and lowering to be tested, and checked. However, as reported by inspector Eraut, 'rapid progress followed', and, in 1905, 'speaking generally it may be said that each separate wharf or jetty on the Thames is now furnished with one or more lifebuoys or floats with a rope attached'[74]. Mr Bellhouse, district inspector for East London, explained that he and his staff devoted much of their time to the new regulations, and that he was 'most agreeably surprised at the comparative smoothness with which they have been put into force'[75]. Nevertheless, such positive feedback was not universal. Havelock Wilson, President of the National Sailors' and Firemen's Union and a Liberal MP for Middlesbrough, criticised the government in a House of Commons debate about the regulations on 5 March 1906. He claimed that the regulations 'for the protection of life and limb are practically inoperative' as there were not enough inspectors to conduct the 'extra work'[76].

Later annual reports from the inspectorate continued to convey encouraging signs. There was 'a further improvement in the general observance of the requirements' in 1909[77]. This statement was echoed in the same report by Mr Cook, district inspector for East London. He noted that 'genuine efforts' were being made by the full range of interested parties, including shipowners, officers in charge of vessels, dock authorities, occupiers of wharves, master stevedores, contractors, and employees[78]. The following year, in 1910, Mr Clark Kennedy, district inspector for East London, commented favourably upon the 'much more general willingness' to comply with the regulations[79]. He wrote:

> The old passive resistance and the effort to cast ridicule upon the detailed requirements have almost entirely disappeared[80].

This development was encouraging, but it did not signal an irreversible trend of improvement. Progress was not inevitable. The number of fatal accidents at docks, wharves and quays nationwide actually increased from 136 in 1910 to 183 in 1912 – the highest figure for the whole period under discussion (see figure 3 on page 14). Safety initiatives and inspections were never able to banish hazards or accidents completely from such dangerous workplaces. Moreover, better and safer practices were not sacrosanct – they were subject to the mercy of everything from the adherence and scruples of local employers to the vicissitudes of global events.

74 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1905*, Reports and Statistics, HMSO, London, 1906, Cd. 3036, p.220.

75 Ibid., p.36.

76 HC Deb 5 March 1906 vol. 153 col. 74.

77 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1909*, Reports and Statistics, HMSO, London, 1910, Cd. 5191, p.xxxviii.

78 Ibid., p.14

79 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1910*, HMSO, London, 1911, Cd. 5693, p.15.

80 Loc. cit.

The outbreak of the First World War, for example, was followed in early October 1914 by government-ordered restrictions on lighting to reduce the threat of Zeppelin attacks. Such darkness increased the danger of dock work and two fatalities in East London were linked to the blackout[81]. Commenting on work in docks, wharves and quays, W.S. Smith, inspector for dangerous trades, also referred to higher accident figures in East London in 1914 and he attributed this, in part, to better notification, as well as increased trade at the docks in the second half of the year. Dock inspections were then neglected during the war due to staff absence, and certain safety measures on ships were changed as they were adapted for wartime[82].

Charity played a small role in alleviating distress in these difficult times. The Poplar Hospital for Accidents on East India Dock Road, Blackwall, cared for many workers injured in the nearby docks (see quotation from John Burns on page 21 of this report). The hospital received 'fifty guineas' (worth £4,870 in today's money) following a meeting on 22 November 1917 of the General Committee of Lloyd's Register – the world's first ship classification society[83]. The donation was made following a 'special appeal' by Sir Joseph Broodbank, Acting Chairman of the Poplar Hospital[84].

There was a renewed focus on safety following the end of the First World War because it was desperately needed. Gerald Bellhouse, Deputy Chief Inspector of Factories, wrote about a 'period for reflection' after the conflict in the *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1918*[85]. Accidents, including 1,579 fatal incidents in all workplaces, were decried as 'an enormous economic loss to the nation, to industry, and to the workers themselves' at a time of labour shortages following the war. Bellhouse continued:

There was a renewed focus on safety following the end of the First World War because it was desperately needed

> There must be a determination by both employer and worker to bring about a reduction in accidents…and there must be active co-operation between them, if satisfactory results are to be obtained[86].

The legacy of the First World War continued to undermine safety on the docks. Inspectors in 1920 noted that precautions had been neglected during the conflict, such as the maintenance of fencing, provision of lifebuoys, and 'means of escape at the waterline of docks and wharves'[87]. The 'rough usage' experienced by ships' machinery during the war and the lack of care for such equipment were cited as reasons for higher fatal accidents on ships than on shore in East London in the same year[88].

81 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1914*, Cd. 8051, 1915, p. 76.

82 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1919*, Cmd. 941, 1920, p. 34.

83 *Lloyd's Register General Committee Minutes*, 1917-1918, p. 147. The origins of Lloyd's Register date back to 1760 when it was set up by customers of Lloyd's Coffee House on Lombard Street in the City of London.

84 Ibid., p. 146. Sir Joseph Broodbank was also Chairman of the Port of London Authority's influential Docks and Warehouses Committee

85 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1918*, Cd. 340, 1919, p. 13.

86 Loc. cit.

87 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1920*, Cmd. 1403, 1921, p. 49.

88 Ibid., p. 50.

In subsequent years, the inspectors noticed encouraging developments on the docks, quays and wharves. By 1921, 'considerable improvements' had been made, and shipowners, shipmasters, stevedores and dock workers appeared 'to be more alive to their respective responsibilities in connection with the Regulations'[89]. The following year inspectors declared that 'the standard of compliance was probably higher in 1922 than in previous years', and the arrival of electric light improved lighting at the docks[90].

The Docks Regulations 1904, were also updated in 1925. The new regulations mandated the provision of first-aid boxes, which were to be managed by a trained first aider for workplaces with more than 50 employees[91]. An 'ambulance carriage' was also required to move the seriously sick or injured for workplaces with more than 50 employees, unless other arrangements had been made for an ambulance from a hospital or other place, contactable by phone, and not more than two miles from the dock, wharf or quay[92].

Home Office Industrial Museum

One unprecedented, impactful and long-running national safety initiative was the creation of the Home Office Industrial Museum on Horseferry Road in Westminster. Its necessity was understood, and it was constructed before the First World War, but it was unable to open for its original purpose until December 1927 (having first been commandeered for war work and then restored following the conflict). The Museum's purpose was to:

One unprecedented, impactful and long-running national safety initiative was the creation of the Home Office Industrial Museum

> …show the best methods for the time being which are known to the Home Office for protecting the industrial worker against accidents, and promoting conditions most favourable to his or her health and efficiency[93]

While open to the public for certain hours, it was mainly regarded as a resource 'for employers and workers and their organisations'[94]. The purpose was not solely altruistic as the twin ambitions of the Museum were to contribute to the 'well-being of the workers'…'but also to the efficiency of British industry'[95].

The dangers incurred when loading and unloading ships at docks, wharves and quays, and the precautions taken to reduce them, were highlighted in a series of photographs in the Museum's gallery. Best practice included 'good gangways…affording safe means of access from quay to ship, or from one ship to another'; purpose-built ladders; fencing of hazardous equipment and areas, including 'ships winches', 'hatchways',

89 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1921*, Cmd. 1705, 1922, p. 34.
90 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1922*, Cmd. 1920, 1923, p. 37.
91 Docks Regulations 1925, Part I: 4, 6.
92 Ibid., Part I: 7.
93 His Majesty's Stationery Office, *Descriptive Account and Catalogue of the Home Office Industrial Museum and Exhibits*, London, 1928, p. 1.
94 Loc. cit.
95 Loc. cit.

and 'dangerous parts of quays'; and the provision of 'life-saving appliances'[96]. The photographs also revealed hazards, including damaged ladders, dangerously-positioned ladders, steam outlets obstructing the 'view of swinging loads and other dangers', and the 'unsatisfactory stacking of timber near side of quay'[97].

In the foreword to the third edition of the Museum's catalogue in 1934, Sir John Gilmour, Home Secretary, wrote of the:

> …increasing value of the contribution made by the Museum to the safety, health and comfort of the industrial worker[98].

However, he also admitted 'that the use made of the Museum by industry is still much too restricted' and he urged visitors to spread the word[99].

The Museum's efforts were widely applauded in Parliament. In a House of Commons debate on Home Office administration, Ellis Smith, Labour MP for Stoke, described his visit to the Museum as a 'privilege'[100]. Geoffrey Lloyd, Conservative MP for Birmingham Ladywood and Under-Secretary of State for the Home Department, was fulsome in his praise:

> Undoubtedly, the museum does a great deal of good work, and the more widely it is known the better. There is unquestionably a number of employers and trade unionists in this country who would benefit from a visit to the museum, and, of course, it is open to the public.[101]

The Home Office Industrial Museum was later known as the Safety, Health and Welfare Museum, and then the Industrial Health and Safety Centre before it was closed in 1980.

Docks in the 1930s

In 1930, 74 fatal accidents occurred in docks across the UK, meaning the docks were still one of the most lethal industries after building (125 fatalities), metal-working, including smelting and rolling (120 fatalities), and shipbuilding (also 74 fatalities)[102]. Common problems linked to the docks, as noted in the report of 1930 by the Chief Inspector of Factories and Workshops, included concerns about foreign ships (particularly the failure to provide certificates approving ships' gear), unsafe access from the deck to the holds, and hatches left unprotected when not in use[103]. Foreign shipmasters also complained about the variation in regulations between the UK and elsewhere (as will be explained, this discrepancy was resolved four years later with the introduction of internationally-recognised regulations). Unsafe practices remained. At Liverpool, for

96 HMSO, *Descriptive Account and Catalogue of the Home Office Industrial Museum*, 1928, p.93.
97 Loc. cit.
98 HMSO, *Descriptive Account and Catalogue of the Home Office Industrial Museum and Exhibits*, 1934, p. v.
99 Loc. cit.
100 HC Deb 30 July 1936, vol 315, col 1826.
101 HC Deb 30 July 1936, vol 315, col 1840.
102 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1930*, Cmd. 3927, 1931, p. 11
103 Ibid., p. 41.

example, instead of using the gangways to board ships, men clambered onto crane loads and were hoisted aboard[104]. Overall, reductions in accidents in the docks at Liverpool in recent years were mentioned and progress was recognised at Cardiff, Barry, Dundee and Ardrossan. However, Glasgow, Aberdeen, Bristol and Middlesborough were criticised as 'little or nothing has been done'[105].

London attracted similar criticism: 'There is certainly room for much more safety work in the London docks'[106]. Apart from displaying safety posters, organisations in the Port of London had achieved 'little', apart from the Port of London Authority (PLA) - one notable exception, which was singled out for praise. In the report, Mr Plumbe, inspector for Southwark, detailed the make-up and activities of the six-member safety committee, which was appointed annually, for the Surrey Commercial Docks. Three members, including the chairman, were nominated by the PLA, and the other three were nominated by the local trade union. The committee met monthly to review all accidents from the previous month, and suggestions were made to avoid such accidents in future. Many such proposals had been implemented, including the levelling of floors to prevent goods 'jumping' from trucks, improved lighting, imposing speed limits upon motor vehicles in the docks, and spreading sand or salt on gangways to improve footholds[107]. One important improvement introduced by the PLA at the Surrey Commercial Docks involved marking the centre or balancing point of a barge hatchway to prevent tilting on lifting. Following advice from the PLA, this innovation was 'gradually adopted by all private barge-owners'[108]. Then, as now, good practice had a tendency to spread.

The report by the Chief Inspector of Factories and Workshops for the following year, 1931, recognised improvements. There were many examples of stevedores refusing to work on ships with uncertified equipment[109]. It recorded how, in London, a new body made up of employers' and workers' representatives – similar to the example of the PLA's Safety Committee – was created by the National Council of Port Labour Employers and the London Shipowners' Dock Labour Committee to reduce the risk of accidents[110]. Such committees, which were already established and 'specially satisfactory' in Liverpool and Dundee[111], evolved and were emulated elsewhere. In 1932, the Ocean Shipowners joined the PLA to form a Safety Committee to consider accident prevention, and a Safety Committee was formed for the Port of Bristol.

1932 was also significant for dockers as it marked a watershed in international efforts to standardise safety measures. Advanced discussions about protecting employees had already been underway since an international convention was drafted in 1929 by the International Labour Organization – a tripartite body representing governments, employers and workers (it was set up in 1919 under the Treaty of Versailles).

104 Ibid., p. 42.
105 Ibid., p. 23.
106 Loc. cit.
107 Ibid., p. 22.
108 Loc. cit.
109 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1931*, Cmd. 4098, 1932, p. 43.
110 Ibid., p. 23.
111 Loc. cit.

The workers at the heart of this report. Surrey Commercial Docks: Softwood Timber Operations. Gang of deal porters posed during one of their hourly rest intervals on top of big stack on quay. Albert Gravely Linney. Note what may be bottles of beer on the left. © Museum of London.

Representatives of dock employers, workers and the Home Office examined the draft text, which differed from British regulations and included certain unclear requirements, and voiced their concerns. The document was raised at the ILO's general conference in Geneva on 12 April 1932, and a re-drafted version, entitled the Protection Against Accidents (Dockers) Convention (Revised), was adopted 15 days later.

The Convention was designed to protect dockers involved in loading and unloading ships at any harbour, dock, wharf, quay or similar place. Its 25 articles required such workplaces to be well lit, free of obstructions, and for dangerous areas to be fenced off[112]. Safe access from ship to shore was to be provided by a ladder, gangway or similar construction, and once onboard there was to be safe access from the deck to the hold, normally by ladder. Hoisting machinery, or gear, whether on shore or onboard, was subject to examination and testing to ensure it was in a safe working condition. The Convention prompted further discussions between the representatives of the employers, the workers and the Home Office. Sir John Gilmour, Conservative politician and Home Secretary since September 1932, consulted the interests concerned and proposed new national regulations to enable the UK to ratify the Convention. The Docks Regulations 1934, signed by Sir John on 5 March 1934, came into force on 1 June that year. The Convention came into force on

112 Protection Against Accidents (Dockers) Convention (Revised), International Labour Organisation, www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_INSTRUMENT_ID:312177:NO, Accessed 15 May 2020.

30 October 1934 and was ratified by the UK on 10 January 1935. The government recognised the importance of international regulatory alignment and enforcement, and held dinners in honour of meetings of the International Conference on Reciprocity in Enforcement of Docks Regulations at the May Fair Hotel in 1932[113], and at Lancaster House in St James's in 1935[114].

The Docks Regulations 1934, were extensive, comprising six parts, a total of 51 clauses, and a schedule[115]. They replaced the previous regulations of 1925, and included 'many additional requirements, particularly in regard to cranes and lifting gear generally'[116]. Certain clauses and phrases were identical to the wording found in the Convention, including the two-foot-six-inch height of fencing around dangerous areas, and dimensions concerning ladders when the depth from the deck to the hold was more than five feet[117]. In many respects, the Docks Regulations went much further and were more detailed than the international regulations that had spawned them. All lifting machinery was subject to stringent checks and could not be used for a safe load until it had been tested using a proof load that significantly exceeded the safe load[118]. An age restriction was also introduced, with no-one under 16 allowed to operate a crane or winch, however it was powered, or to give signals to such an operator[119].

Accident prevention efforts in the Port of London gained more and more praise as the 1930s progressed. In 1934, the report by the Chief Inspector of Factories and Workshops commented on the active and satisfactory results of safety committees established in the ports of London, Liverpool, Manchester, Plymouth, Bristol, Leith and Dundee[120]. The report the following year was even more complimentary:

> Outstanding examples are the Port of London Authority and the Glasgow City Corporation, who have decided, at costs of about £34,000 and £5,000 respectively, to substitute, on premises controlled or owned by them, modern electrical hoists for the old-fashioned type hitherto in use[121].

Similarly, the report in 1936 again referred to the PLA's modernisation of hoists, describing the 'impressive scale' of such continued improvements[122]. The reports for the rest of this period did not mention the Port of London, or the PLA, specifically, but commented on the emerging national picture of improved compliance

113 Dinners, 21 July 1932, *The Times*, p. 15.

114 Dinners, 26 July 1935, *The Times*, p. 17.

115 Docks Regulations 1934, SI 1934, No. 279, http://www.legislation.gov.uk/uksro/1934/279/pdfs/uksro_19340279_en.pdf , Accessed 15 May 2020.

116 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1934*, Cmd. 4931, 1935, p. 22.

117 Protection Against Accidents (Dockers) Convention (Revised), 1932, Article 2.4; Article 5; Docks Regulations 1934, Part I: 1; Part II: 11.

118 For a safe working load of up 20 tons, the proof load was 25 per cent in excess. Docks Regulations 1934, Schedule.

119 Docks Regulations 1934; Part IV: 34.

120 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1934*, Cmd. 4931, 1935, p. 45.

121 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1935*, Cmd. 5230, 1936, p. 26

122 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1936*, Cmd. 5514, 1937, p. 22.

with the Docks Regulations. In 1937, the report noted that dock workers were 'taking a greater interest in safety' and would complain to an inspector if they identified a danger. Such developments were positive, as was the spread of good practice:

> All this is to the good and tends to raise the standard all round. Improvement in the observance of the Regulations has been noted on foreign ships from various countries.[123]

The following year, the report also mentioned progress in relation to the Docks Regulations, but also the remaining challenges, especially onboard:

> On the whole the standard of compliance with this Code is improving, although many structural irregularities continue to be found on ships, particularly in regard to the fencing of winch shafts, locking gear for reversing levers, and access to holds[124].

Aside from the Dock Regulations, other new national legislation was introduced and this also had an impact upon port work, including in the capital. In 1937 the far-reaching Factories Act was passed, and its provisions were to apply to docks, wharves, quays, warehouses and ships[125]. Under the Act, employees were to have access to drinking water, and washing facilities (including soap and clean towels)[126]. Many of its rules referred to the type of work and situations commonly found in ports and onboard ships. Measures were to be taken to protect against the inhalation of dust or fumes, when working with dangerous substances, meals were to be taken in a different part of the workplace, no work was to be conducted in underground rooms without light, ventilation, and a fire escape, and a 'young person' was not allowed to lift excessive weights that were likely to cause injury[127]. The expansion of laws governing factories, docks and other workplaces was accompanied by the substantial growth of the inspectorate in charge of enforcing the Factory Acts. In 1900, there were 137 inspectors and assistants, by 1929 there were 206, and this increase further accelerated to 320 by 1939[128].

123 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1937*, Cmd. 5802, 1938, p. 36.

124 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1938*, Cmd. 6081, 1939, p. 49.

125 Factories Act 1937, 1 Edw. 8 & 1 Geo. 6, Ch. 67, Part VII: 105-6.

126 Factories Act 1937, Part III: Welfare (General Provisions).

127 Factories Act 1937, Part IV: Health, Safety and Welfare (Special Provisions and Regulations).

128 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1910*, Cd. 5693, 1911, p. 256; *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1939*, Cmd. 6251, 1941, p. 57.

Conclusion and lessons

Working at the docks, or even passing through them, has always been a perilous business. This was especially true at the turn of the twentieth century, when large workforces were involved in loading and unloading varied and unwieldy cargoes (often manhandling goods) in confined spaces. Accidents, including drownings and falling into the ship's hold, were commonplace. Working conditions today are much better (as they are in all industries compared to the early 1900s), and accident rates are much lower, largely because of containerisation, mechanisation, the simplification of loading and unloading process, and the smaller workforces involved. However, docks remain dangerous and lives could be saved if safety practices were improved.

The historical findings and insights shared in this study show how the authorities responded to dock deaths and accidents in the UK in the past, and how their deliberations and actions contributed to reducing fatalities in this period, from 115 in 1899 to 69 in 1939. The implications from such historical data suggest that dock safety today could be improved if certain policies, practices and trends evident during that 40-year period were reinstituted. Moreover, better safety provisions in certain docks during the early twentieth century were noticed and replicated elsewhere, largely because of the familiarity and interconnectedness between trading hubs involved in domestic and international commerce. What worked spread to other ports, and the expansion of dock safety could follow such a model again in the future.

Health and safety professionals, policy makers and historians could all contribute to efforts to improve dock safety inspired by the past in the following three ways:

1. Recording the specifics of all workplace deaths, including dock deaths

The annual reports of the Chief Inspector of Factories and Workshops in the early to mid-twentieth century were comprehensive and precise. They recorded the specific causes of workplace accidents, including dock deaths. For example, an analysis of dock accidents in the Port of London in 1922 ran to three pages, with the type of accidents listed under six headings and 90 sub-headings to account for 1,588 accidents, including 18 fatal incidents[129]. This compares with the limited and imprecise breakdown of fatal accidents – divided into only eight categories – in the HSE's report on workplace fatalities for 2021-22[130]. Without detailed evidence about the causes of workplace accidents, it is impossible to monitor them closely. This means it is difficult to identify problems and trends, and, therefore, it is difficult to design and implement solutions. Recording the specifics of all workplace deaths, including dock deaths, would go some way to redressing this.

2. Increasing pro-active workplace inspections on the docks

The special enquiry by factory inspectors James Maitland and Sydney Eraut in 1900 into dock accidents set the tenor for developments in dock safety until the Second World War. Their investigation showed the varied cause of accidents and suggested simple solutions to overcome them. Such work contributed to the docks being classified as dangerous and to the ensuing Docks Regulations 1904 – a major milestone in dock safety.

129 *Annual Report of the Chief Inspector of Factories and Workshops for the Year 1922*, Cmd. 1920, 1923, p. 33-35.

130 Health and Safety Executive, *Workplace Fatal Injuries in Great Britain, 2022*, https://www.hse.gov.uk/statistics/pdf/fatalinjuries.pdf , 2022, p. 4.

Regular and pro-active visits to the docks continued by inspectors working for the Chief Inspector of Factories and Workshops, and safety committees were established in ports from Dundee to London. Hazards and dangerous practices were identified and recommendations were made to mitigate them before they led to accidents and deaths. Such a proactive approach is required again to prevent accidents on the docks. This would signal a divergence from the current focus on reactive inspections following dock fatalities, and a general trend towards reducing inspections following the government's downgrading of docks to 'lower risk areas' in 2011.

3. Promoting the live-saving benefits of improved health and safety on the docks

The dangers of working on the docks and the effectiveness of safety measures were shown in photographic exhibits in the Home Office Industrial Museum, which opened in 1927. These examples were used to educate employers, trade unionists and the public. Similar exhibits today, possibly at the Heritage and Education Centre run by Lloyds Register Foundation, the Museum of London Docklands, or the People's Museum, Manchester, could emphasise the history of improved health and safety in the workplace, and why adherence remains important today. Historians could develop complimentary online resources to reach a wider audience, including dock safety professionals, policy makers and workers from across the world. This would be especially relevant given the international nature of risks, accidents and fatalities associated with dock work. This could be part of a wider educational campaign to emphasise the importance of health and safety legislation and the progress made in the last 100 years – progress that could be reversed if it is not closely monitored and maintained.

Reducing the dangers of dock work in the UK, 1899-1939: how past approaches could prevent future tragedies

Hindsight Perspectives for a Safer World

Report Series: No.2023.2

A collaboration between History & Policy at King's College London and the Lloyd's Register Foundation