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# Introduction: labour, design and culture

In March 2015 I was paid a visit by Grant Hofmeyer, a printer who had trained as a letterpress-machinist in the early 1970s. Grant had worked at the South Australian Government Printing Office for much of his life, and he continues his letterpress practice from a home studio. I was accustomed to meeting such printers; for years I had interviewed people like Grant about their attitudes to craft skill and technological change. We sat in a characterless university waiting area, and I made a passing reference to a Xerox laser printer in a nearby office, loudly churning out pages.

'That's not a *printer*!' came Grant's emphatic response, 'That's a press. A printer is a person.'

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In the first decades of the twenty-first century, the printing and publishing industries have turned their energy to online and electronic media. Jobs continue to disappear from printing, publishing and journalism. Even the most traditional of printed matter – government publishing – has become immaterial. Once literally bound by the authoritative presence of the leather codex, twenty-first-century government documents are now digital phenomena: 'PDFs', websites and e-books. The solemn authority that had been afforded to the tangible printed object has slipped from our grasp and once-respected institutions such as 'Government Printing Offices' now seem quaint and obscure.

As the last vestiges of paper-based print culture appeared to disintegrate into ephemeral digital data, I began to wonder about the harbingers of this major shift. Who and what were the early casualties of the 'digital switch', and who was carried along with the tide? Significant technological shifts do not happen with a 'bang'. They are gradual, creeping sequences that we unwittingly prepare for in advance, through our 'will

to order' and our connection with machines, as Lewis Mumford reminded us in 1934.[1]

The replacement of human labour with digitised technologies is not merely a contemporary issue; it has an established history dating from the mid-twentieth century. The period from the 1960s through to the 1980s saw the gradual entry of personal computers into domestic and workplace contexts in Western capitalist nations; a transition that has been well documented in sociology and social histories of technology.[2] The introduction of computerised and automated technologies profoundly transformed the labour conditions and industrial politics in factory and office workplaces. In some cases, automation and computerisation made tasks less dangerous or physically taxing, but in many others, new technologies made employees' hard-won trade skills redundant.[3] Computerisation often reduced the number of employees required and it often degraded the workers' connection to the production process. The weakening of workers' labour power and the reduction of staff numbers contributed to a declining influence of printing unions. This narrative is well established.

What is often missing from this record is an understanding of how the world of work is tightly interwoven with the tangible and affective worlds of material culture and design, even in supposedly 'clean' computerised environments. Work is inextricably bound up with a world of *things*, with and through which the social and gendered processes of workplace life are enacted and experienced. Understanding how we interact with and interpret design is crucial for appreciating the complexities of the labour experience, particularly at times of technological disruption. The significance of material culture in the labour process goes far beyond issues of technological retraining. Objects and design have their place in shaping and reshaping labour identities, cultures and environments. A thorough consideration of design in changing workplaces helps us form a more nuanced view of workers' adaptive responses to technological change and workplace disruption. For instance, it helps to widen our gaze beyond 'official' labour, to consider the clandestine creative production undertaken by workers, the making of things 'on the side'.

While technologies constantly change (and supposedly progress) all around us, most of the machines that surround us are not particularly 'new'. There are always the 'slow zones', the contexts where emerging technologies take a long time to filter in. Most of us are very familiar with anachronistic workplaces of one kind or another, so often filled with rapidly obsolescent technologies. There are offices still peppered with chunky desktop computers, whirring uncomfortably loudly, a little too hot to the touch. Then there are the factories that are too expensive to fully refit. It is in these slow zones that the remnants of past knowledge, skills and work culture quietly linger. Oversized and underused iron machinery rigidly structures paths across the shop floor; workers speak of being

retrained five times over. This book is not about the winners or pioneers of technological change. It is about the rest of us, and about the material legacies of a fast-paced world of technological upheaval.

## Technological change in the printing industry

Of all forms of manufacturing, it was in the printing industry in the second half of the twentieth century where objects were a particularly fraught matter. The disruptive manifestation of new computer typesetting equipment, for example, asserted its presence not merely through workflow changes, requalification and retrenchment. The fundamental physical presence of such new technologies also dictated print-workers' futures. Linotype operators had to retrain their hands and minds, relearning to type, this time on small 'qwerty' keyboards. The new technologies bore a distinct resemblance to what was then seen as 'feminised' clerical technologies, producing gender-labour tensions and challenges for working-class masculinities. Those who formerly set the type – compositors – remember the fiddly but satisfying practice of hand-setting pages in lead type in preparation for letterpress printing. From the 1960s and 1970s, some of these compositors shifted their skills, transforming into digitally fluent 'graphic designers' who now speak knowledgably of software such as Adobe InDesign, and complain of being forever out-of-date with the latest version of the program.

The arrival of these boxy, beige computers in the 1970s and 1980s signalled a new order, one characterised by individualism, seemingly opaque technical systems and the end of strictly delineated skilled trades and crafts. Those who survived the printing industry's transition did so as individuals allied with 'new' technologies, detached from the collective craft culture of the past. Others chose not to retrain, and instead cherished their old craft skills through collecting memorabilia and treasuring obsolete trade tools. *Hot Metal* engages with both kinds of workers: those who remained tied to hot metal and those who, to some extent, relinquished that bond and sought connections with newer technologies.

As previous studies have established, printing was an exceptional case; it remained a stalwart 'craft' well into the twentieth century compared to other more automated industries.[4] In countries such as the United Kingdom (UK) and Australia, the labour supply of apprentices was tightly controlled by the printing unions, and printers were able to maintain long-standing technical practices (such as letterpress and hot-metal typesetting) through strictly delineated trade demarcation and industrial bargaining.[5] By the second-half of the twentieth century, however, the printing industry – once the high-status bastion of traditional mark-making – was facing dramatic structural transformation and a steep learning curve. The public's demand for printed matter continued to rise. The machinery required to

produce printed products was swiftly becoming more automated, making it increasingly attractive to employers. As a result, the period from the 1960s to the late 1980s saw the virtual extinction of hot-metal typesetting and letterpress printing in the global north. This period also witnessed the mainstream introduction of computerised typesetting and high-speed offset-lithographic printing. As a consequence, this three-decade period saw the almost complete disappearance of a swathe of printing crafts such as stereotyping, electrotyping, dot-etching and engraving, hand-binding, hand-embossing, hand-composing, paper-ruling, Linotype and Monotype operation and pre-press camera operation (see list of terms at end of book).

The printing industry's trajectory belongs to a larger story. It is part of a global transition, a process of deindustrialisation and a shift away from bureaucratic welfare-state models, towards neoliberal, free-market economics. As historian Steven High and photographer David Lewis note, deindustrialisation is more than an economic process, it is a cultural transition, and often produces stark ruptures in the social fabric of industry-dependent communities.[6] In the first half of the twentieth century in North America, Britain and Europe, industrial workers – often protected by trade-specific unions – had access to relatively high wages and ample job opportunities. Between 1900 and 1980 manufacturing employment in wealthy economies rose almost threefold, to 71.5 million.[7] But by the 1970s, workers faced increasing job insecurity, due in part to technological developments, but also to the patterns of the globalised capitalist market, which led to the offshoring of cheap labour to the global south. Around 22 million manufacturing jobs were lost in North America between 1969 and 1976.[8] Between 2000 and 2010, notwithstanding global growth in manufacturing production, manufacturing jobs fell from 17.2 million to 11.5 million in the United States (USA) and the UK saw a decline from 4 million to 2.5 million.[9]

In places such as Australia, the protections that had been afforded to domestic manufacturers were whittled away, replaced by 'economic rationalist' approaches to political economy. By the mid-1980s, the city of Sydney's once-vibrant manufacturing sector had visibly declined, while growing economies in Asia provided cheap imports. For Sydney's industrial workers, the old certainties of the modern era were disintegrating.[10] A 'job for life' was no longer guaranteed, even in the previously secure government public service. The once highly prized skills of a trade soon became an old-fashioned encumbrance.

What can the early stages of this digital conversion tell us about how complex systems evolve and about how people and collectives cope when faced with dramatic (but often clumsy) technological and organisational transformation? This book begins the process of answering this question, and in doing so reveals the dense interconnectedness of labour, technology, material culture and the culture of working life. In doing so,

*Hot Metal* operates on two levels: theory and content. On the one hand, it reveals a theoretical approach that consciously intermingles labour history with an attention to material culture and design, bringing a consideration of spaces, objects and embodied experience into a historical analysis of labour and working life. On the other hand, this book is also a historical study of an intriguing case. It explores the three-decade period prior to the closure of the New South Wales (NSW) Government Printing Office, Sydney, between 1959 and 1989 (hereafter referred to by its colloquial name, 'the Gov'). This case speaks broadly about the social and material challenges of work in a deindustrialising society, and it gives voice to workers from a variety of perspectives: men, women, managers, skilled tradespersons and manual labourers.

Of late, research in the fields of design history and material culture studies has been less engaged with the politics of labour and the culture of working life and more involved with innovation, consumption and designers.[11] This was not always the case. Design history in the 1980s and 1990s tended to be more engaged with production than it is today.[12] At the other end of this book's disciplinary spectrum, labour history has engaged to some extent with material culture, chiefly in relation to archaeology and museum studies.[13] There have been concerns, however, that prioritising material culture can lead to superficial and aestheticising interpretations that ignore worker experience.[14] *Hot Metal* demonstrates that it is possible to delve deeply into material culture without losing touch with labour history. This book is therefore an interdisciplinary historical recovery, integrating labour history, design and material culture studies and oral history studies of working life. It asserts a method for collectively examining workers' experiences: of technological change, precariousness, and of industrial decline in the second half of the twentieth century. These issues are approached in a manner that retains the voices of workers (through oral history), and adds relevant considerations of design and material culture in the workplace by paying attention to the role of objects, spaces and the embodied experience of technological change.

## The aestheticisation of labour history?

Historians have warned that the public historical treatment of industrial heritage too often falls into a celebration of industrial architecture and an aestheticisation of obsolete industrial machinery. Labour historian Lucy Taksa, for example, argued that this problem was encountered in the treatment of Australian railway heritage, where renovated buildings and refurbished train carriages at Sydney's old Carriageworks have been transformed into reified spaces of consumption and entertainment.[15] Taksa's concern is that the material culture pertaining to the industrial past is appreciated only for its aesthetic and nostalgic potential, separated

from social and labour histories.[16] The more intangible parts of labour history, such as workplace folklore, union struggles, worker practices and human stories, have been lost. Taksa therefore warns against historical approaches to the industrial past that emphasise objects and architecture, as this might risk an overly simplistic celebration and/or a fetishisation of machinery and industrial buildings.[17]

Must labour history be disassociated from material culture and design? My position is that this need not be the case. While Taksa's argument certainly makes sense in relation to her given examples of railway heritage, I contend that, if executed properly, combining the history of labour with attention to material culture can be a highly effective interdisciplinary approach.[18] As well as analysing workers' experiences of technological, social and economic transformation, *Hot Metal* proposes that labour history, oral history and design are disciplines that can be combined fruitfully in a historical study. The focus on material culture and technology in history need not be merely about aesthetic or surface considerations, such elements are wholly social and political.

This historical analysis takes into account the culture of working life; at the same time, the active and influential role of material culture is not forgotten, nor is it trivialised through an out-of-context celebration of industrial machinery. Here, human stories and material culture are tightly interconnected, each bearing upon the other. This approach can illuminate the complex and entangled ways in which people and technical worlds are sometimes allied, sometimes in opposition. It also allows us to learn of the (unauthorised) creative and resilient practices that can emerge in industrial contexts. Paying attention to material culture also means paying heed to what might be considered minor details and making room for embodied experience and unauthorised creative practices.

## Recovering Sydney's Government Printing Office, 1959–89

As a case study, the Gov is a rich example of a workplace that found itself – as many often do – 'behind the times' in technological terms. The Gov was both a government-run industrial factory and a service department that aimed to combine all of the printing trades and apprentice education under one roof. It was established in 1840 in the colony of New South Wales by Governor George Gipps. Law was not enacted until it was printed, and the frustrated Gipps found that the colony's small collection of private printers placed no priority on government work, hampering his ability to govern. Similar institutions existed in Europe and North America, such as Britain's HMSO (Her Majesty's Stationery Office), established in 1786 (initially to control the supply of paper), and the United States' Government Printing Office, established in 1861. Other examples include South Africa's Government Printing Works and the Queen's Printer for Canada.


NSW Government Printing Office fabric patch. **1**

NSW Government Printing Office pressroom, showing Whitefriars machine, 1907, Sydney. **2**

At its largest and busiest – between the 1920s and the 1960s – the Gov printed almost all state government materials and some Commonwealth material. It employed approximately 1200 workers in 1920, and when it closed in 1989 it employed 845 men and women.[19] Until mid-1989, the Gov composed, printed, bound and distributed parliamentary and legal materials, such as Bills, Acts and parliamentary proceedings (*Hansard*). Its primary responsibility was to meet the printing needs of the NSW Parliament. Over time, its output expanded to include a variety of products: for example the electoral roll, ballot papers, departmental annual reports, duty stamps, school examinations and transport tickets. The Gov provided government departments, politicians, lawyers and judges with specialist handwork services such as hand-bound law books in half-calf leather, embossed stationery, gold leaf invitations and state photographic services.

It should be evident by now that this book will not undertake traditional institutional history of this printing factory; its salience extends well beyond a piece of Sydney's print history. Nor does *Hot Metal* chart each significant event that occurred at the organisation between 1959 and 1989. Rather, this date span – 1959 to 1989 – covers the years that the Gov operated from a newly constructed, modern building in the industrial Sydney suburb of Ultimo. The period draws to a dramatic halt in mid-1989. The Liberal State Government, under the leadership of Premier Nick Greiner, abruptly closed the factory, with only four weeks' notice.

In those final three decades, the Gov was a troubled institution. From the late 1960s, the Australian printing industry – traditionally characterised by a masculine craft culture and strong union control – began several disruptive shifts. Although computers were gradually introduced, various forms of hot-metal typesetting remained in use until the factory's closure in 1989. It was also one of the first Australian factories to open non-traditional apprenticeships to women. During this thirty-year period the Gov was pulled in conflicting directions by traditionalists, unionists, economic rationalists and those somewhere in between.

As noted, between the 1970s and late 1980s we saw the phase-out of letterpress printing in favour of offset-lithography, and the obsolescence of hot-metal typesetting following the introduction of computerised typesetting. Between 1977 and 1989, there was a situation at the Gov where 'old' and 'new' technologies often coexisted in the same factory space, with letterpress machines operating next to offset-lithographic presses and Linotype machines operating in tandem with computer typesetting. By the early 1980s, letterpress was perceived as 'over' by much of the Western printing industry, and high-speed offset-lithography and computerised typesetting were increasingly dominant. The Gov was slow to change over. The traditions of government publishing were not easily adapted to the new technologies and in this sense the maintenance

of traditional graphic design dictated the continued use of older technologies. The Gov's transition from a letterpress printery into a computerised office (which was well under way by 1984) was not without its difficulties and it produced tensions that came to be expressed through workplace practices and material surroundings, as well as within the narratives that the Gov's employees constructed – and continue to reshape – about themselves and their former workplace.

Being both an official instrument of government authority and an industrial plant with a vigorous union presence, the Gov was a complex network of people, technologies, bureaucratic systems and printed matter, held together by sometimes-incompatible values and objectives. The Gov is a striking example of the longevity of certain technologies, and the massive disruption that occurs when entrenched socio-technical systems are finally eliminated. The story of the Gov speaks broadly about the impacts of deindustrialisation, not only in terms of job security, but also in terms of the material and affective qualities of the labour experience. Moreover, the termination of manufacturing enterprises such as this is not simply a loss of jobs; it also marks the end of a diverse set of workplace cultures and skilled design practices.

The Gov enables us to see particularly clearly a clash of ideas about how to organise a complex institution and how to cope with the socio-technical challenges of governing, making, working and belonging in a particular historical moment. Because it was a government establishment, the Gov differed from the commercial printing industry. Its priorities were originally about the production of governmental authority in tangible form, not about efficiency and profit. Many of its clients were proponents of formal, parliamentary-style design and they demanded long-established traditional processes, despite associated inefficiencies.

By the 1980s, the political momentum of federal and state governance in Australia turned increasingly towards the politics of economic rationalism. Government-run enterprises became targets for closure, charged with the argument that private industry could do the job more affordably.[20] Those who advocated reform and public ownership of assets envisioned that the Gov could become an efficient, computerised centre for handling government data. Hard-line economic rationalists and the private printing industry called for its closure, arguing that the Gov was inefficient and a 'hotbed' of industrial activity. In this context, the Gov's very existence came into question in a way it never had before. These conflicting interests became thoroughly embedded within practices, machines and spaces at the Gov.

The Gov was indeed a strong 'union shop', representing workers through the Printing and Kindred Industries Union (PKIU) and the Public Service Association (PSA), among other organisations.[21] Prospective employees in the printing trade sought work at the Gov by contacting the

union. The PKIU branches were organised into 'chapels' and the branch leader was known as the 'father of the chapel' (FoC). An FoC was employed at the Gov on a full-time basis as a union representative. Given the collective strength of the PKIU, almost any issue involving technological change led to shop-floor tensions, discontent and industrial action.

What happens to the people who are caught up in this change, what strategies do they use to survive, and how do they cope with the looming threat of redundancy? In examining these issues, *Hot Metal* weaves together source materials from oral history, photographic collections and archives to ask how people, technologies and spaces were mobilised to cope with precariousness and change (or, in some cases, a lack of change). Their responses varied from complete resistance to adaptation, from denial to acceptance. Such responses were closely connected to material culture and to practices of designing and making. Workers coped by *building alliances* and through *unofficial creative production*.

## Building alliances

Print-workers came to grips with their precarious circumstances by developing alliances with people and/or with technologies. This involved staking out territories (either spatially or by developing their skills). Some workers clung to their traditional trade skills and collective practices with pride and defiance, while others embraced new technologies with enthusiasm and an individualistic drive for self-improvement. As these new technologies increasingly faced obsolescence, however, the individually driven exercise of 'self-development' risked becoming inexorable and exhausting.

## Unofficial creative production

As explored throughout this book, many print-workers enacted their own narratives – of resilience, of belonging and even of industrial decline – through unsanctioned activities. Throughout my research, former employees introduced me to their 'extracurricular' practices at work. This included the clandestine production of printed materials, as well as better-known shop-floor antics such as pranks, games and rites of passage for apprentices. There was a rich culture of humour, irreverence, creative (and sometimes resistant) practice. This mode of unofficial production should not be dismissed as a trivial part of workers' stories. Indeed, the exercise of creativity was one of the means through which workers survived the uncertainty that they underwent in the 1980s.

## Accounts of printing labour and technological change

The focus of most existing labour history research on the printing industry falls on the nineteenth and earlier twentieth centuries.[22] Historians Rae Frances and James Hagan, among others, have analysed the complex relationships that evolved between print-workers, unions, employers, trade demarcation and technological innovation.[23] In her analysis of the boot, clothing and printing trades, Frances deftly draws together issues of gender, technological change, definitions of 'skill' and industrial relations. Both Frances and Hagan use a close examination of industrial disputes in the nineteenth and twentieth centuries, an approach that I have not taken in this book, although the significance of the unions should not be ignored. My approach is to look closely at 'working life' at the Gov.[24] Crucially, working life entails not only the official activities of the institution, but also the unofficial, unreported acts that go on in the workplace.

One discipline that overlaps with labour history is the history of technology. British and American work in this field offers useful parallels with other industries, in terms of workers' adaptations to technological change, and the gender and class implications of these shifts. In this discipline, the work of Ava Baron (on gender, deskilling and the American printing industry), and Ruth Oldenziel and Roger Horowitz (on gender, labour and technological change) link technologies to gender-labour controversies.[25] In addition, British and American labour historians and social theorists such as James Meyer, Steven Maynard, Paul Willis, Steven High and Paul Thompson provide a framework for interpreting labour relations in an era of increasing automation and declining manufacturing.[26]

To find examinations of the printing industry in the second half of the twentieth century, one must look to the discipline of sociology, and particularly to studies of gender and the labour process from the 1980s and 1990s.[27] The most influential sociological examination of technological change, gender and the printing industry remains the work of Cynthia Cockburn.[28] Other sociologists who have examined technological change in printing emphasise the (often negative) impact of technological change on workers, but, unlike Cockburn, these publications are usually less attuned to the way in which technologies intersect with issues of gender, power and the relations of production.[29] Her 1983 text *Brothers* – on British newspaper compositors in the late 1970s – is revisited in *Hot Metal* for its powerful and still salient insights into gender and the materiality of technology. Cockburn's evocative description of Linotype operators' connection to machines led me to suspect that there was more that could be said about the role that material culture and embodied practice plays in a printer's experience of technological change.[30]

## Design, material culture and workplace folklore in a printing house

For the purposes of this particular study, the use of the term 'material culture' includes technologies, physical systems and spaces; it does not refer solely to autonomous objects.

Sociologist and material culture theorist Phillip Vannini provides a useful description of the interconnectedness of studies of material culture and technology and, crucially, links this to action – to the things that people and things do:

> To study material culture is to study the technological underpinnings of culture, and to study technology is to study the material character of everyday life and its processes of objectification. What is central to such a view is an understanding of sociality and culture as a form of *making, doing* and *acting.*[31]

Vannini sees culture as 'deeply shaped by techne – that is, craft, skills, creativity' and, on the flipside, social life is deeply imbued with material properties.[32] This interlinked consideration of technology and material culture lends itself to the methodological combination employed in *Hot Metal*, because this book tells a story that hinges on design tradition, materiality and technology as mobilising forces for change. Social and technical worlds are mutually constitutive and the associations attached to things are always in flux. The role that printing machinery, factory spaces, tools, printed products and bytes played in this context means that to understand the demise of traditional printing crafts and the rise of computerised work, a consideration of design, embodied experience and space is crucial.

The materials that the Gov produced were ubiquitous and generally quite ordinary, black-and-white and frequently text heavy. Yet the sheer diversity of the Gov's production was something that touched everyone, regardless of how little they were aware of it. In 1959 the *Sydney Morning Herald* proclaimed:

> The Government Printing Office is with every citizen from the cradle to the grave. It prints his birth certificate, his marriage licence, the form registering and certifying his death. For every bus and tram ride, he is given a government printed ticket. Many of his text books he reads in his Public schools … are Government Printing Office products; if he bets with a bookmaker on a racecourse his ticket has the Government Printing Office imprint; so has his car licence … his summons to court, the order committing him to prison if he refuses to pay a fine. A permit for a grazier to move sheep comes from the Government Printing Office; the award under which an employer pays his staff comes from the Government Printing Office; and his lottery tickets, and the bus, tram and train timetables he consults.[33]

Significantly, each of these human milestones was represented *physically*, in printed matter. In this respect, the Gov was the producer of designed objects that ratified a person's social status. Not only did it enable the state

to govern, it also provided the tangible provisions that allowed people to be affirmed as citizens.

Craft and design theorist Glenn Adamson has noted that 'one of the key problems in the study of material culture is the phenomenon of loss'.[34] Although the Gov's building still stands in inner-city Sydney, little remains of its interior or its contents. The building now houses a computer data storage centre. We do not have direct access to the larger material artefacts that would have existed in the factory between 1959 and 1989. In any case, the lack of a thorough repository of technologies is not necessarily a historical problem, as it is not my intention to provide a taxonomic history of technological change in printing. Such an approach would tell us little of the social and labour impacts. While we no longer have access to the building and many artefacts from the period have been lost, this book makes use of a wide variety of primary and secondary sources: oral histories from workers, photographic collections (both official and worker photographs), amateur film, staff publications, tools, ephemera and archives.

Oral history is employed here to access individual and collective ways of talking about working life, and to explore workplace folklore. Interview participants' recollections are handled with care and discretion and interpreted in relation to the existing body of knowledge about the complex and relative nature of oral history material. We cannot know precisely what former employees feel or think and we cannot treat oral history as a verifiable source of 'facts'. Nonetheless, oral history can be used as a means to understand how former employees construct narratives about themselves and their workplace. Oral sources paint a complex picture of physical experience and the social and creative aspects of working life. They also show us how workers' experiences rarely fit neatly into pre-existing historical frameworks. Oral evidence is used in tandem with more traditional forms of historical sources; at times stories are verified and at other times there are telling contradictions. Another major source is the extensive photographic collection of the NSW Government Printing Office, which includes thousands of images of employees, working spaces and technologies. The methodological complexities of dealing with oral history and institutional photographs are unpacked in the following chapter.

## Chapter organisation and historical background

*Hot Metal* is arranged in three parts. 'Part I Image, space, voice' establishes the methodological and theoretical use of oral history, photography and spatial analysis. As mentioned, Chapter 2 – a methodological oral history chapter – explores the possibilities that open up for historical analysis when workers' oral histories are paired with institutional photographs.

3 The new NSW Government Printing Office Building, Ultimo, c. 1960s.

Chapter 3 sets the scene, quite literally: it is an architectural and spatial exploration of workers' embodied and mnemonic experience of their factory. When it opened in 1959, Sydney's new Government Printing Office was a refreshingly modern workplace. It was spacious, organised and apparently rationally planned (figure 3). At the opening event, the building was celebrated as a magnificent 'monument to literacy and democracy'.[35] As this chapter demonstrates, spatial memory can be a strong part of oral history content, and spatial and architectural parameters open up possibilities in both labour and material culture histories.

'Part II Technological transitions' is about how workers coped with particular technological changes: the shift from letterpress to offset-lithography and the transition from hot-metal typesetting to computer phototypesetting. Chapter 4 examines the experience of press-machinists, many of whom retrained in offset-lithography, letting go of their old letterpress skills. It highlights the significant place that machinery – the presses themselves – had in how the workers understood and redefined their identities as skilled craft*smen*. Chapter 5 outlines the history of compositors (those who set the type) and reviews the way in which these changes altered the gender division of labour in typesetting.

The 1980s produced a situation where new technologies and labour processes led to the creation of different divisions of labour, breaking down old divisions and, in some cases, producing new ones. Gender was one category that was at stake in the reconfiguration of the printing industry's divisions of labour. The complex, shifting gender regime of the Gov was always present in the way in which machines, job roles and spaces were interpreted, navigated and transformed.[36] As examined in Chapters 4 and 5, the gender regime at the Gov was not dictated simply by past tradition. The relations between gender and labour in the workplace are active and evolving, not static.[37] The same applies to the way in which particular technologies and objects can become gendered at particular points in time; these associations are continually changing and being renegotiated. In some cases, new technologies are appropriated by those in power so as to replicate older divisions of labour.[38] In other cases, new technologies represent a rupture in the dominant gender regime of a particular worksite.

'Part III Challenges and creative resilience' explores the creative, resourceful and sometimes resistant tactics that workers employed as a way of coping with institutional sexism, the drudgery of work and job insecurity. Chapter 6 returns to the issue of gender, this time considering the experiences of women in the printing industry and specifically at the Gov. From the early 1970s, the NSW Public Service began to embrace progressive concepts such as equal employment opportunity (even before the law obliged it to do so) and it encouraged the retraining of tradespeople in emerging technologies. Women – for so long maligned and forbidden

entry by unions into the patriarchal world of skilled printing trades – were increasingly encouraged to undertake non-traditional apprenticeships.[39] From 1974 women were able to enter non-traditional printing apprenticeships at the Gov, and their numbers gradually increased. Nonetheless, continuing gender prejudice within the printing industry meant that women faced considerable challenges. These women were not passive victims of discrimination; they came up with strategic and creative ways of managing their situations and their tactics included the remaking of particular spaces and zones and the attainment of thorough knowledge of machinery. The contentious politics of lifting heavy objects is examined, revealing one of the ways in which actual embodied practice differed from prejudiced workplace rhetoric about women's physical capacity.

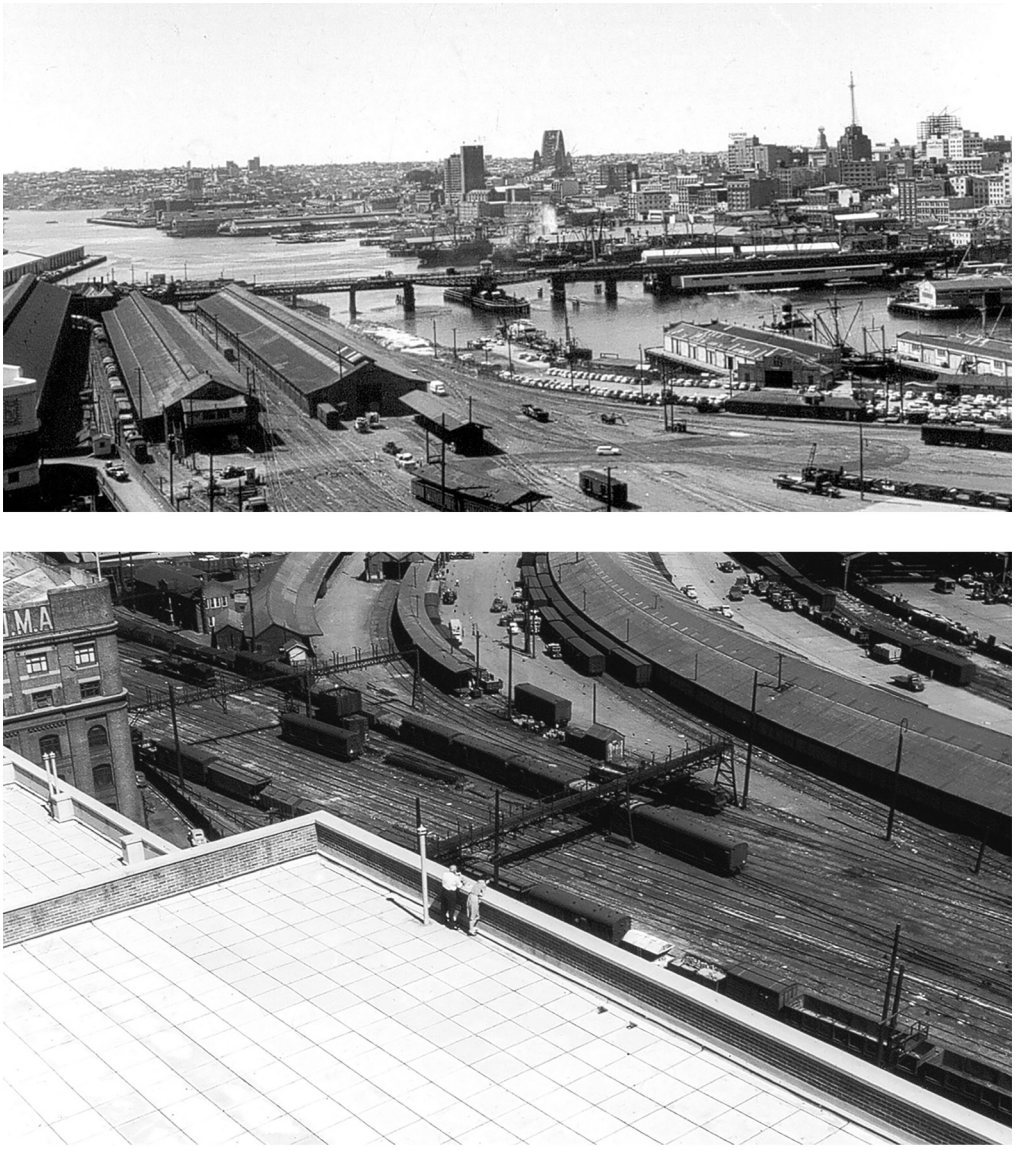
Chapter 7 uncovers the unofficial and sometimes underhanded practices of making things 'on the side' and other imaginative transgressions in factory contexts. At a time of industrial decline and increasing job insecurity, manual creativity and play became an important part of workplace survival, as well as part of the industrial folklore. A 'foreign order' is Australian industrial slang, referring to a practice whereby workers produce objects at work – using factory materials and work time – without authorisation. This is an underexplored but global phenomenon with many names, including *homers*, *side productions*, *government jobs*, and *la perruque*. There are silences, however, about these furtive acts of creative production. Existing discourse – both in design and labour histories – tends to examine 'official' activities or products, potentially leaving out whole swathes of creative practice quietly taking place on the factory floor.

The following brief explanation of the Gov's changing political context helps us to understand the politicisation of the workers' unofficial creative activities in the 1980s. The Government Printer from 1958 to 1973 was Victor Charles Nathaniel Blight (privately referred to as 'Vicious Callous Nasty Bastard' by some workers). Blight's leadership style was emphatically authoritarian and set the tone for a hierarchical management style inherited from nineteenth-century printing organisations. The Freemasons held an influential sway in NSW public sector life in the mid-twentieth century and Blight was a Grand Master and Leader of the Masonic Lodge.[40] At the time, there was a broad social understanding in the Australian public service that Masonic membership was crucial for those looking for promotion. The strength of the Freemasons at the Gov began to wane by 1973, with the retirement of Blight and the appointment of Government Printer Don West, a West Australian printing manager who had worked in newspapers and was unaffiliated with the Freemasons (figure 4).

In 1976 the Labor Party's Neville Wran was elected as Premier of the state of New South Wales. Henceforth, the machinery of government in NSW was gradually reformed. As described by historian Beverley

Kingston, prior to the Wran reforms, the state public service had 'management systems devised in an ad hoc fashion', as well as 'cases of wasteful demarcation, duplication and outright obstructionism'.[41] The reforms were socially progressive and fiscally conservative, and are part of a broader political and economic realignment in Australia and internationally. Although Wran publicly distanced himself from (by then former) Prime Minister Gough Whitlam's radical agenda, like Whitlam, Wran embraced socially progressive policy. But by the 1980s, the neoconservative UK and US economic policies increasingly influenced Australian politics. This is widely acknowledged as a federal pattern, exemplified by then federal Treasurer Paul Keating's policies of deregulation and economic rationalism (during his role in the Hawke government). In fact, the state of NSW predated Keating's rationalist policies; Premier Wran's leadership featured a drive to reform the public service in a 'corporate management' style.[42] This meant that some public service departments were pressured to put more emphasis on outcomes that were financially measurable, and less focus on effectiveness or achievement on non-economic grounds.[43] Fiscal targets and efficiency audits became the style of the time. Social values held less sway in decision making than issues of efficiency and profit. This contrasted with an older, bureaucratic attitude towards public institutions,

Senior manager Bill Bright, incoming Government Printer Don West, outgoing Government Printer Victor Charles Nathaniel Blight, senior managers Sid Hampson and Fred Layt, 1973. **4**



5 Two views from the Gov building towards Darling Harbour Railway Goods Yard and Sydney city, c. 1960s.

which focused on regulations and a rationalist concept of legalistic order.

By the time the Liberal Party's leader Nick Greiner was elected as NSW Premier in 1988, the economic rationalist ideals on which he campaigned were already entrenched within the management of the state public service.[44] Beset by negative predictions for the health of the NSW economy, the new state government became increasingly interested in

raising revenue by the sale of government institutions: power stations, coal mines, railway infrastructure and printing offices. No longer was there a faith that centralised, government-controlled departments ensured efficiency, security and order. The unregulated commercial market was seen as the solution. This historical period is representative of a broader shift in global political economy; a move away from traditional manufacturing activity, towards individualised attitudes and a free-market service economy.

Between the 1970s and 1980s, the city of Sydney also changed shape dramatically – from an industrial city with a working industrial harbour (Darling Harbour) into an ambitious and brash metropolitan hub and a glittering recreational harbour, with aspirations of becoming a global city and a centre of culture, banking, sport, tourism and technology. The eastern side of the Gov faced Darling Harbour. The Gov's workers gazed from their factory building at the transformation of Sydney's urban fabric from a working harbour and goods railway into a globalised service city[45] (figure 5). As the demolition and redevelopment of Darling Harbour unfolded before them, it was as if they were witnessing their own decline and precarious status.

The final chapter of this book takes us through those final days of the Gov. It reveals the emotive and powerful significance of material culture when an institution is extinguished. Objects were at the centre of this story of industrial decline. It is not simply that objects became connected to memory. During the factory closure, material culture both stirred emotions and consoled workers who felt they had not been respected by the institution to which they had been loyal. Thus we return to the central message of this book: history is not merely the movement of people through time, it is bound up with the ever-changing physical and spatial world. A bringing-together of labour history with design therefore seems not only appropriate, but entirely necessary.

These chapters combine to show a method whereby oral history, material culture and stories of labour and working life can be productively brought together in the telling of an industrial history. Moreover, *Hot Metal* reveals the ways in which male and female workers – from a variety of class and trade backgrounds – responded to the dramatic social, political and technological changes associated with deindustrialisation. It is about how people – collectively and individually – resist, tolerate, endure and embrace the transformations of their working lives, through building alliances and unofficial creative practices. Both methods were strategic (and sometimes unconscious) responses to their increasingly precarious and swiftly changing situation. Like the rest of us, these printworkers wrestled for small fragments of autonomy and security in a world over which they had little or no control. Returning to Grant Hofmeyer's remark about the laser-printing machine, it is important to be reminded

of the power that technologies can have over workers, past and present. A brand new, whirring machine can represent not only a loss of a livelihood but also the total diminution of a craftsperson's identity and culture. In our rush to embrace all that is technologically new and innovative, there remains the risk that all we do is make ourselves more like machines, rather than bringing humanity into technology.

## Notes

1 L. Mumford, *Technics and Civilization* (Chicago: University of Chicago Press, 2010 [1934]), pp. 3–5.
2 See for example: J. Agar, *The Government Machine: A Revolutionary History of the Computer* (Cambridge, MA and London: MIT Press, 2003); A. Zimbalist (ed.) *Case Studies on the Labor Process* (New York: Monthly Review Press, 1979); N. Ensmenger, 'The digital construction of technology: rethinking the history of computers in society', *Technology and Culture* 53:4 (2012), 753–76.
3 The two best-known and much debated texts on this pattern remain: H. Braverman, *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century* (New York: Monthly Review Press, 1998 [1974]); D. F. Noble, *Forces of Production: A Social History of Industrial Automation* (New York: Alfred A. Knopf, 1984).
4 C. Cockburn, *Brothers: Male Dominance and Technological Change* (London: Pluto, 1983), pp. 36–55; A. Zimbalist, 'Technology and the labor process in the printing industry', in Zimbalist, *Case Studies*, pp. 103–26.
5 Cockburn, *Brothers*, pp. 19–23. See also R. Frances, 'Marginal matters: gender, skill, unions and the Commonwealth Arbitration Court', *Labour History* 61 (1991), 17–29.
6 S. High and D. W. Lewis, *Corporate Wasteland: The Landscape and Memory of Deindustrialization* (New York and Toronto: Between the Lines and Cornell University Press, 2007), p. 2.
7 P. Marsh, *The New Industrial Revolution: Consumers, Globalization and the End of Mass Production* (New Haven, CT: Yale University Press, 2012), p. 237.
8 High and Lewis, *Corporate Wasteland*, p. 3
9 Marsh, *The New Industrial Revolution*, p. 237.
10 For comparative experiences of labour precarity see R. Sennett, *The Corrosion of Character: The Personal Consequences of Work in the New Capitalism* (New York and London: W. W. Norton & Co, 1998).
11 K. Fallan, *Design History: Understanding Theory and Method* (Oxford and New York: Berg, 2010), p. 37.
12 See for example: M. Berg, *Technology and Toil in 19th Century Britain* (London: CSE Books, 1979); E. Lupton, *Mechanical Brides: Women and Machines from Home to Office* (New York: Cooper-Hewitt National Design Museum and Princeton Architectural Press, 1993); M. Diani, 'The social design of office automation', in V. Margolin (ed.), *Design Discourse: History/Theory/Criticism* (Chicago and London: University of Chicago Press, 1989), pp. 67–76; T. Fry, 'Unpacking the typewriter', *Block* 7 (1982), 36–47.
13 See for example: A. Green, 'Perambulating scrapbooks and saloon-sawdust sifters: ghosts along the labor/material culture trail', *Western Folklore* 65:1/2 (2006), 31–46. Green's analysis on the relationship between labour history and material culture in American academic discourse suggests that studies of folklore have been more open to analysing material culture. See also B. Oliver and A. Reeves 'Crossing disciplinary boundaries: labour history and museum studies', *Labour History* 85 (2003), 1–7.

14 L. Taksa, 'The material culture of an industrial artifact: interpreting control, defiance, and the everyday', *Historical Archaeology* 39:3 (2005), 8–27.
15 L. Taksa, 'Machines and ghosts: politics, industrial heritage, and the history of working life at Eveleigh workshops', *Labour History* 85 (2003), 65–88; L. Taksa, '"Pumping the life-blood into politics and place": labour culture and the Eveleigh Railway Workshop', *Labour History* 79 (2000), 11–34.
16 Taksa, 'Machines and ghosts', p. 66.
17 Notably, Taksa's own work fruitfully uses material culture as part of a labour history analysis. See for example: L. Taksa, 'Retooling the class factory', *Labour History* 82 (2002), 127–33.
18 One example where aesthetics are sensitively integrated into labour history is High and Lewis, *Corporate Wasteland*.
19 R. C. Peck, *NSW Government Printers and Inspectors of Stamps*, self-published, Sydney (2001), p. 51.
20 B. Kingston, *A History of New South Wales* (New York and Melbourne: Cambridge University Press, 2006), pp. 232–3.
21 The PKIU (1966–95) was formed as an amalgamation of the Printing Industries Employees' Union of Australia (PIEUA) and the Australian Printing Trades Employees' Union (APTEU). It later amalgamated with the Federated Photo-Engravers. Peak membership in 1970 was around 60,000, with the most well-known industrial action taking place in 1976, against John Fairfax and Sons' introduction of computerised typesetting. See Chapter 5.
22 See for example: A. Baron, 'An "other" side of gender antagonism at work: men, boys, and the remasculinisation of printers' work, 1830–1920', in *Work Engendered* (Ithaca, NY and London: Cornell University Press, 1991), pp. 47–69; E. F. Baker, *Printers and Technology*, Westport, CT: Greenwood, 1974); D. Bryans, 'The double invention of printing', *Journal of Design History* 13:4 (2000), 287–300; M. Twyman, *Breaking the Mould: The First Hundred Years of Lithography* (London: The British Library, 2001).
23 See for example: J. Hagan, *Printers and Politics: A History of Australian Printing Unions 1850–1950* (Canberra: Australian National University Press, 1966); R. Frances, *The Politics of Work: Gender and Labour in Victoria 1880–1939* (Cambridge, New York and Melbourne: Cambridge University Press, 1993).
24 J. Shields (ed.), *All our Labours: Oral Histories of Working Life in Twentieth Century Sydney* (Sydney: University of New South Wales Press, 1992).
25 See for example: Baron, *Work Engendered*; R. Oldenziel, *Making Technology Masculine: Men, Women and Modern Machines in America, 1870–1945* (Amsterdam: Amsterdam University Press, 1999); R. Horowitz (ed.), *Boys and Their Toys? Masculinity, Technology and Class in America* (New York and London: Routledge, 2001).
26 S. Meyer 'Work, play, and power: masculine culture on the automotive shop floor, 1930–1960', in Horowitz (ed.), *Boys and Their Toys*, pp. 13–32; S. Maynard, 'Rough work and rugged men: the social construction of masculinity in working class history', *Labour/Le Travail* 23 (1989), 159–69; P. Willis, 'Shop floor culture, masculinity, and the wage form', in J. Clarke, C. Critcher and R. Johnson (eds), *Working-class Culture: Studies in History and Theory* (Birmingham and London: Hutchinson, 1979), pp. 185–98; P. Thompson, 'Playing at being skilled men: factory culture and pride in work skills among Coventry car workers', *Social History* 13:1 (1988), 45–69; High and Lewis, *Corporate Wasteland*.
27 See for example R. Reed, 'From hot metal to cold type printing technology', in E. Willis (ed.), *Technology and the Labour Process: Australasian Case Studies* (Sydney: Allen & Unwin, 1988), pp. 33–50; A. Game and R. Pringle, *Gender at Work* (London, Sydney and Boston, MA: George Allen & Unwin, 1983); R. W. Connell, *Masculini-*

*ties* (Sydney and Oxford: Allen & Unwin, 1995); R. W. Connell, 'Glass ceilings or gendered institutions? Mapping the gender regimes of public sector worksites', *Public Administration Review* (2006), 837–49.

28 Cockburn, *Brothers*; C. Cockburn, 'The material of male power', *Feminist Review* 9 (1981), 41–58; C. Cockburn, *Machinery of Dominance* (London, Sydney and Dover: Pluto, 1985).

29 See for example M. Wallace and A. L. Kalleberg, 'Industrial transformation and the decline of craft: the decomposition of skill in the printing industry, 1931–1978', *American Sociological Review* 47:3 (1982), 307–24; T. F. Rogers and N. S. Friedman, *Printers Face Automation* (Lexington and Toronto: Lexington, 1980). There are exceptions. Rosslyn Reed develops upon Cockburn's understanding of the gender relations of the printing industry, adding a critique of the traditional conception of 'skill'. See for example: R. Reed, 'Journalism and technology practice since the Second World War', in A. Curthoys and J. Schultz (eds) *Journalism: Print, Politics and Popular Culture* (Brisbane: University of Queensland Press, 1999), pp. 218–28; R. Reed, 'Anti-discrimination language and discriminatory outcomes: employers' discourse on women in printing and allied trades', *Labour and Industry* 6:1 (1994), 89–106.

30 Cockburn, *Brothers*, pp. 48, 96, 101.

31 P. Vannini (ed.), *Material Culture and Technology in Everyday Life* (New York, Washington, DC and Bern: Peter Lang, 2009), p. 3. His italics.

32 *Ibid*., p. 3.

33 'Service for citizen's lifetime', *Sydney Morning Herald* (24 February 1959), p. 26.

34 G. Adamson, 'The case of the missing footstool: reading the absent object', in K. Harvey (ed.), *History and Material Culture* (London and New York: Routledge, 2009), p. 192.

35 J. J. Cahill, Premier of New South Wales, speech at the opening of the new NSW Government Printing Office building, 23 February 1959, Sydney.

36 Connell, 'Glass ceilings or gendered institutions?'

37 *Ibid.*, p. 841.

38 As described in Baron, 'An "other" side of gender antagonism', pp. 47–69. See also J. Shields, 'Deskilling revisited: continuity and change in craft work and apprenticeship in late nineteenth century New South Wales', *Labour History* 68 (1995), 1–29.

39 R. Reed and J. Mander-Jones, *Women in Printing: Employers' Attitudes to Women in Trades* (Canberra: Women's Bureau, Department of Employment, Education and Training, 1993).

40 'High honour for local man', *The Campsie News and Lakemba Advance* (10 January 1973), p. 1.

41 Kingston, *A History of New South Wales*, p. 208.

42 A. Yeatman, 'The concept of public management and the Australian state in the 1980s', *Australian Journal of Public Administration* 46:4 (1987), 339–56; M. Considine, 'The corporate management framework as administrative science: a critique', *Australian Journal of Public Administration* 47:1 (1988), 4–18.

43 D. H. Borchardt, 'Has the AGS a future? Some comments on current problems', *Government Publications Review* 9 (1982), 391–9.

44 B. Kingston, *A History of New South Wales*, p. 209.

45 The author acknowledges the Cadigal people of the Eora nation as the traditional owners of the land around Darling Harbour and Ultimo in Sydney.