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Going Digital: The Experience of the Transition to Digital Projection in UK Cinemas

Richard Wallace

Abstract:

This article addresses the digital transformation in UK cinemas between 2000 and 2014, as viewed by cinema projectionists. During this period digital projectors replaced mechanical 35mm film projectors throughout UK cinemas. This resulted in many redundancies and a fundamental change in the way films are shown. This article draws on interview material with a number of current and former cinema projectionists (including a number who were made redundant and some members of the trade union BECTU) to provide an account of this period of change as it was experienced by those most affected by it. The ways in which the speed of the change was perceived are examined in detail. The article also considers how narratives of personal and professional change and redundancy are mediated through the attachment to technology and the experience of technological change. The respondents' descriptions of the arrival of the digital projectors and the focus on 'the final show' are common themes around which such narratives are constructed.

Keywords: BECTU; digital projection; Digital Screen Network; memory; oral history; projectionists.

This article examines the transition to digital film projection in UK cinemas as it has been viewed by cinema projectionists, the majority of whom have been made unemployed by this process. The transition began shortly after the turn of the twenty-first century and was completed in 2014. For most of the twentieth century, the majority

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of theatrically released films were distributed as 35mm celluloid film prints, though the specific exhibition context of these film prints has changed significantly over time. Technological, economic and industrial developments have seen the exhibition of 35mm film evolve from an operation which involved five men being employed by one cinema to show one film on one screen, to one which required only one projectionist to 'single man' an entire multiplex of as many as twelve screens.¹ Technological changes in film stock, light source and spool capacity of film projectors, along with the introduction of automation systems, meant that, over the course of the twentieth century, cinema projection was in a constant state of change and, one could argue, subject to a continual, gradual process of deskilling.

Nevertheless, throughout that period, wherever one found a projector in a UK cinema one also invariably found a projectionist. Film handling and projector maintenance required specialist skills to ensure the smooth running of the show and to avoid damaging the expensive film prints, which typically cost around £1,000 per copy. These were transported to cinemas as several separate spools, packaged together in cumbersome containers weighing about 25 kilograms,² and it was the projectionist's job to prepare, or 'make up', the print by joining the reels together in the correct order, along with the adverts and film trailers. These would then be lifted onto the projector and 'threaded' or 'laced-up' ready for the start of the show.

The projectionist was also responsible for ensuring the smooth running of the film programme. This attention to detail would include what is often referred to as 'presentation' or 'showmanship', and projectionists were the key orchestrators of the cinematic experience. Presentation included setting the mood through the choice of entry music and a suitably evocative lighting scheme, where both intensity and colour was controlled. Each projectionist had their own signature style for the timing of the start of the show, with no two projectionists dimming the lights, fading down the music, opening the cinema curtains (also called tabs) and starting the projector in quite the same way. All of this was the work of the cinema projectionist, and that is before we begin to discuss the various technical and mechanical requirements of the job that lay elsewhere in the cinema, and which ranged from maintaining the heating and ventilation of the auditorium to changing light bulbs and repairing vacuum cleaners.

The replacement of 35mm film projectors with digital projectors – which play Digital Cinema Packages (DCPs) delivered on hard drives barely larger than a DVD – has also seen the wholesale automation of cinema projection and the removal of cinema projectionists. Where

there is a digital cinema projector, it is now very unlikely that there is an accompanying projectionist. Instead, the transformed digital labour of cinema projection mainly involves dragging and dropping files from a hard drive onto a server and then importing them into a pre-existing digital playlist which is programmed to start automatically. This has become a secondary concern of the multiplex duty manager or is delegated to staff whose primary employment is the selling of tickets and refreshments.

The automation and mechanisation of previously manual/analogue processes is not a new development. As John Burnett notes, 'rapid technological change has been a characteristic of British industry for the last two hundred years; automation, microprocessors and information technology are only the most recent stages in a continuum of innovation' (1994: 6) that has its roots in the Industrial Revolution. Digital projection is by no means the only moment of disruption in the history of cinema projection, though it is the most significant because it has resulted in the removal of the projectionist as a central figure in cinema exhibition. This article addresses this period of change and engages with an apparent paradox by which the removal of the projectionist has made it more possible and also more urgent to understand what the job entailed. This article, therefore, uses the lens of twenty-first-century technological and industrial change to begin to understand the labour of projection work as it was before its obsolescence. Although there are naturally many other elements of this history to explore, my project here is to focus on this endpoint as a way into thinking about how we might go on to think about the past. By focusing on the end of cinema projection, I open up questions of the relationship between workers and machines and the meaning of work at a point at which those relationships have undergone radical change.

The role of the UK Film Council (UKFC) and its Digital Screen Network (DSN) initiative is central to the UK's pioneering uptake of digital technology. However, a detailed account of the institutional and policy aspects of this history, including an assessment of the DSN's successes and failures, can be found elsewhere (Doyle et al. 2015) and I do not wish to repeat that work here. Instead, this article takes as its central concern the *experience* of technological and industrial change, through a detailed account of how they have been perceived by the cinema projectionists most affected by them. It draws on a series of interviews conducted by the author with projectionists from various locations around the country. These interviews offer rich and frequently moving testimony and this article will focus on perceptions and feelings as they are articulated by individual projectionists who

experienced the transition to digital. In doing so, the article aims to turn the focus of discussion away from industrial factors and towards individuals, and it is fundamentally an exploration of working conditions, industrial relations and union negotiations in the face of significant technological change.

Oral sources are notoriously problematic. However, I present the interview material here in line with Alessandro Portelli's position, which recognises that 'memory is not a passive depository of facts but an active process of creation of meanings' (1998: 69). For Portelli, subjective testimonies are dynamic, malleable accounts which 'reveal the narrators' effort to make sense of the past and to give a form to their lives' (ibid.: 69). To this end, I take the oral testimony presented here to represent a different kind of enquiry to the multi-sourced history of the digital transition presented by Charlotte Crofts (2011) and Doyle et al. (2015). Rather, I wish to take advantage of the very subjectivity of these sources, which Portelli reminds us 'is as much the business of history as are the more visible "facts"' (1998: 67). If oral history is a process of meaning creation through the negotiation of a subjective self in an interview situation, and if, as Portelli argues, oral history 'tells us less about *events* than about their *meaning*' (ibid.: 67), what follows is an attempt to excavate some of the *meaning* of the digital transition in the UK.

Personal identity and work are seen to be strongly intertwined. As Jesse Potter suggests, 'how we understand ourselves through work, and how that understanding is negotiated as we navigate diverging and changing productive spheres, is at the core of contemporary experience' (2015: 21–2). The accounts of the projectionists presented here demonstrate a series of individuals negotiating a significant change in their workplace context: adapting to new technologies, adapting to new professional and social relationships or facing impending redundancy. There is a sense that the identities of those being interviewed are in transition, with the interview itself presenting an opportunity to work through events of the recent past as a process of identity reformulation. This chimes with the work of scholars such as Harry Braverman (1998) and Nicholas Carr – both drawing on Marxist theory – who highlight the degradation in work that has been brought on, in part, by automated processes 'determined by the profit motive rather than by any particular concern for people's well-being' (Carr 2015: 17). Carr asks how one measures 'the expense of an erosion of effort and engagement, or a waning of agency and autonomy, or a subtle deterioration of skill', noting that 'those are the kinds of shadowy, intangible things that we rarely appreciate until after they're

gone' and that we may also 'have trouble expressing the losses in concrete terms' (ibid.: 18). The interviews offer a way into thinking about what has been lost, and the subjectivity of these accounts is, therefore, vital to this process of meaning- and identity-making.

The article explores a number of recurring themes found in the interviewees' accounts around which particular expressions of identity or experience appear to coalesce. I begin by exploring the ways in which the speed of the transition was experienced. This is then followed by two common events around which particular memories cluster. The first of these is the arrival of the digital projectors, which are often accompanied by articulations of remembered anxieties. The second are the anecdotal accounts of 'the final show', which often trigger discussions of redundancy and change. The article concludes with a short account of how projectionists adapted to digital technology.

Speed

The way in which the speed of the transition was experienced is an important aspect of nearly all of the interviews. They are not straightforward accounts of a linear transformation taking place at a regular speed, but more complicated narratives of different processes operating at different timescales. Tim Strangleman notes that many accounts of contemporary employment practices contain a 'theme of acceleration' suggesting that this might be a question of perception (2007: 85). However, a cursory look at the historical and statistical data – such as that collected by the British Film Institute – supports the idea that there was both an actual and a perceptual acceleration.

If we take a long-term view, we can make an argument that the shift from film to digital projection has been a slow one.³ Digital effects have been a part of the production process of major Hollywood films since the 1970s (Price 2013; Prince 1996), digital sound became mainstream during the 1990s and by the end of that decade digital processes had become standard aspects of post-production (Enticknap 2005: 157–8). The first 'born digital' feature was *Toy Story* in 1995 and the first major live-action Hollywood film shot on HD video and projected digitally (in a limited way) was *Star Wars: Episode II – Attack of the Clones* in 2002. It is becoming standard practice for feature films to be produced using entirely digital workflows, though shooting on film remains an attractive option for some film-makers, such as Christopher Nolan, Steven Spielberg and Quentin Tarantino (Dixon 2016). Although experimentation with digital projection has been

ongoing since at least 1989 (*Cinema Technology*, September 1999: 24), it is only in the last decade that digital has become a viable mainstream exhibition technology, lagging behind the use of digital tools in the production sector by some way.⁴

This has not gone unnoticed by projectionists. Birmingham-based retired veteran projectionist Phil Fawke, who finished his lengthy and varied career as a projectionist at the Midlands Arts Centre (mac), says of digital projection: 'I knew it was coming. It had been experimented on two or three times, but they hadn't got it completely perfect.'⁵ These sentiments are echoed by Mike Marshall, who was made redundant from his position of Chief Projectionist at the Odeon, Glasgow Quay, and who recalls witnessing a test of one digital projection system in London:

Odeon brought a [digital projector] up, and it was a video player they linked it to and we were running musicals from it. But you could still see the pixels. That was nine year ago, longer actually, maybe twelve years ago. So, we were sitting back thinking, 'it's okay, they're not going to go digital'. Then we heard the Odeon, Leicester Square went digital. But the reports we were getting back said that they still didn't have it right. So, we thought, 'we're going to be safe'.⁶

For those working within the managerial, curatorial and programming side of exhibition, the early 2000s was a turning point. Mark Cosgrove, film curator at Watershed, Bristol, recalls that, 'it was probably late '90s/early 2000s that [digital projection] was an agenda item [at the Europa Cinemas annual conference]. Then slowly it began to dominate the conference.' Although there were pockets of resistance, 'there was a realisation that this is going to happen and then quite quickly it was about "how's it financed?".'⁷

The answer to this question in Britain came in the form of the Digital Screen Network, masterminded by Peter Buckingham and Steve Perrin of the UKFC. As Doyle et al. (2015: 111–12) acknowledge, Buckingham and Perrin's intention was not the full digital transformation of UK cinema exhibition. Rather it was 'to widen the range of films on offer to the cinema-going public' by funding digital infrastructure which, it was felt, offered advantages – including lower print costs – that would encourage the spread of independent, artistic and low-budget films to a wider audience than would have been possible with physical film prints. The scheme ran from 2005 to 2007, cost £11.5 million, and resulted in the creation of 240 digital screens in 212 cinemas across the UK, 79 per cent of which were outside London (Doyle et al. 2015: 115–16). The DSN propelled the digital conversion

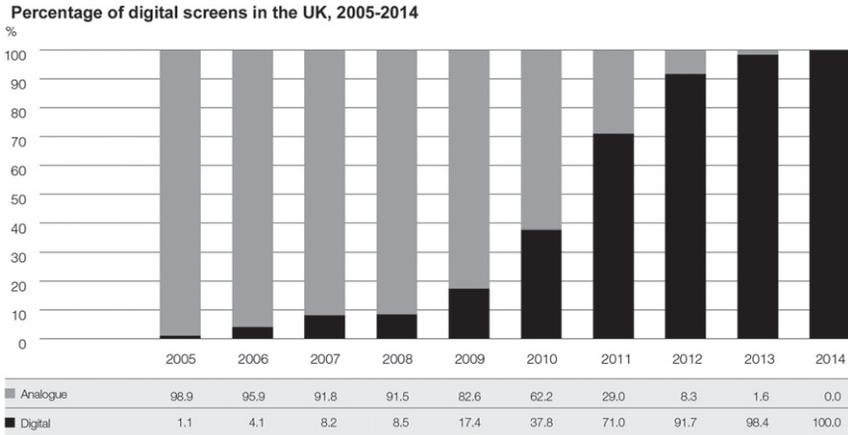


Fig. 1. Percentage of digital screens in the UK, 2005–2014. Image courtesy of BFI Statistical Yearbook and HIS (British Film Institute 2015).

process forward at a much greater speed than if it had been left to develop under its own steam and ‘there is little doubt that, by 2007, within film policy rhetoric the UKFC had finally moved digital to the mainstream of its strategic thinking’ (ibid.: 122).

The projectionists’ perceptions of the transition involve a very slow process of development during the 1990s and early 2000s, before it rapidly gained momentum. As Fawke confirms, ‘when it was perfected it did come rather quick, and the changeover in the cinemas was very, very quick.’ Marshall’s account is of projectionists being overtaken by events: ‘Then, all of a sudden, it hit. Everything started. You’d get folks going “You’re going digital, you’re going digital”, and ... before you knew it, digital was upon you.’

This sense of acceleration is replicated across the much shorter period from 2005 to 2014, when the digital projectors were actually installed. This is clear in data published in 2014 by the BFI (Figure 1). Up to 2005 only 1.1 per cent of UK screens had digital capabilities, amounting to around 35 of the UK’s 3,164 screens. Even after the contribution made by the DSN, from 2005 to 2008 this total saw only a small increase to 8.5 per cent (307 screens). After this gradual increase, the following three years show a rapid acceleration, with the total percentage of digitally enabled screens climbing to 17.4 per cent in 2009 (635 screens), 37.8 per cent in 2010 (1,388 screens), 71 per cent in 2011 (2,675 screens) and 91.7 per cent in 2012 (3,500 screens) (BFI 2015: 4, 12). The years 2009 to 2011 mark the point

when digital projectors became more prevalent than film. In part, this can be attributed to the release of James Cameron's *Avatar* (2009), as many cinemas converted to digital in order to take advantage of the film's digital 3-D effects. The conversion to digital in UK cinemas was complete by 2014 (3,909 screens).

This short-scale acceleration is reflected within the oral testimony. Chris Blower provides this account of the transition in a nine-screen multiplex in the Midlands:

We had one [digital projector] installed and then about a year later, I think it was 2010, we had two more installed. We ripped out [the 35mm projectors] completely and we just had digital [in those screens]. So, we had three. And then I think it was the middle of 2011 we got a phone call from another cinema: 'I hear you're next for the digital installation.' And we were like, 'Are we? We've heard nothing about that at all.' So, we did a bit of digging and we found out we were, and from the time we got the phone call to the complete installation it was about a month. The people that did the installation worked overnight. They ripped everything out, put the digital projectors in, two screens at a time. So we'd show the film in 35mm one day and then exactly the same programme in digital the day after in the same screen. It was just a really quick turnaround.⁸

Neil Thompson, a former projectionist at The Empire, Newcastle-Upon-Tyne, gives a similar account of acceleration. A single screen was converted in 2009 as a test case – it 'took about a month or two to get it installed' – and the 35mm film projector was retained alongside it:

Then, like a year later, they said, 'What we're going to be doing is changing one or two more and then all will be changed at once.' The digital got changed more or less overnight before we left. There was about eight screens to do, all the digital equipment arrived one night and it was all just standing, waiting to be put in. And within two days all the [35mm] projectors . . . had been pushed to one side and the digital machines had been put in, all the plugs were ready just to put into the wall, they had all been rewired weeks before.⁹

This acceleration in installation is tied to the distribution arm of the industry. With only a few screens having been converted by 2008, 35mm film was still the standard distribution format and many cinemas retained their 35mm film projectors following the first wave of conversions; to do otherwise would be to severely limit the choice of films available. Several projectionists recall that it was often impossible to predict which format a film would be sent in before it arrived at the cinema, and trailers and adverts were frequently shown in a different format to the main feature, necessitating a dual projection system.

However, with the rapid increase in digital screens after 2009, the proportion of digital prints also increased, driving the conversion process and making digital projection the clear future of the industry. Adrian Pearce, projectionist at the Warwick Arts Centre recalls the switch in distribution format following the cinema's conversion in 2006:

The majority of films were still 35mm. Then it was once every two to three weeks we were getting a digital film. Then that just gradually increased and then all of a sudden 35mm just stopped with no warning. Everything went digital.¹⁰

The complete transition to digital projection was inevitable given that, as Crofts notes, a dual 35mm/digital distribution system was 'unwieldy' and costly for the distributors, and the 'increase in pace towards digital conversion could [have been] fuelled by a sense of urgency to end this dual-distribution gridlock' (2011: 84). This also goes some way towards explaining why the first projector in Thompson's cinema took two months to install, whereas the final eight took two days altogether.

As well as corroborating the BFI statistics, then, these descriptions of digital change begin to speak towards the ways in which this fundamental industrial change was experienced by those whose work was affected. This becomes very apparent when we start to consider how this changing sense of speed affected the way the transition was negotiated by projectionists, particularly those coming to terms with the possibility of redundancy.

Experiences of technological change

Understandably, projectionists kept one eye on the development of digital projectors with a sense that they might spell their obsolescence, and the accounts of the arrival of digital equipment in cinemas are tinged with suspicion. Mick Corfield, a Birmingham-based former projectionist and trade union negotiator for the Broadcasting, Entertainment, Cinematograph and Theatre Union (BECTU), recalls that 'they put [a digital projector] in my cinema. As a union man it was interesting; I couldn't say no but at least I could keep my eye on it.'¹¹ A number of projectionists characterise the newly arrived digital projectors as spectral objects, haunting the box in a premonitory fashion. Brad Atwill started working as a projectionist for the Cineworld multiplex chain just as the digital conversion was getting underway and currently works at the Tyneside Cinema in Newcastle. His account is particularly evocative in this respect, and he recalls that

the digital projectors ‘all kind of arrived at once and they were all just eerily standing in bubble wrap around the projection booth, knowing that they were going to replace everything else that was there.’¹²

Perhaps most telling of all is Neil Thompson’s account of the reception given to the first digital projector installed at The Empire in 2009. All the staff came up to look at it. They said, “‘Oh I must see what this is”,’ he recalls; ‘of course a lot of them were being funny, and were saying “Where do you put the cups?”’, because they thought it was a tea maker or a coffee maker. And I used to say, “Yeah, yeah, okay”.’ There are a number of levels of meaning at play in this short account. Most obviously, the sense of spectacle provided by the hi-tech projector was enough to encourage the wider cinema team to visit the projection box. However, the joke about the projector being mistaken for a coffee machine also tells us a great deal about the emotional experience of this moment, through the contrasting responses of different sections of the cinema workforce to the new equipment. It is significant that it is not the projectionists that make this joke, but the other cinema staff, for whom this new machine is a labour-saving novelty. Of course, the people making the joke will be relatively unaffected by its arrival. In contrast, Thompson and the other projectionists seem far less enamoured by the technology and distinctly unamused by the joke. Thompson’s ‘yeah, yeah, okay’ dismissal is not simply a marker of awkwardness directed towards those poking fun at the projector; it is a spoken embodiment of concern. Unlike those making the joke, the projectionists are keenly aware that this ‘coffee machine’ could spell the end of their often lengthy careers; it was not a laughing matter.

The arrival of the initial projectors often preceded the full conversion by a significant period of time. Thompson highlights the lengthy period of uncertainty that projectionists were forced to endure while the conversion process took place:

We knew about thirteen or fourteen months beforehand how that was going to work because we got a letter saying that, now that the digital is going to be installed, there’s a chance that there’d be redundancies. I think that was September 2012 and yet we didn’t leave until April 2014.

The year 2012 was itself three years into the conversion process at Thompson’s cinema, so this period of insecurity was significant. The lack of job security was a major concern of those interviewed, and such a lag seems to have led some projectionists into believing that the inevitable might not happen. When Atwill arrived at Cineworld, 35mm projection

was definitely on its way out, but it was still a few years away. I think I almost became sort of slightly disillusioned that it would never go and all our jobs would be fine ... Then all of a sudden you're like, 'Shit, April's round the corner, everything's going.'

Thompson also implies that this lengthy build-up to the final push may have given some projectionists a false sense of how long the final conversion would take. He notes that

the lads that I worked with were saying, 'Hey this is not going take long, they're going to do this and they're going do that', and I'd say, 'Oh, well you know, wait, you know, we might be here longer than you think.' Of course, we went digital ... and it didn't take long.

There is an apparent contradiction in the way the accounts of redundancy simultaneously emphasise the lengthy notice periods and also the sense of being taken by surprise by the speed of the final conversion. Clearly, these periods of uncertainty gave some projectionists false hope that they might keep their job, and we have already seen how the slow take up of digital played a significant part in imbuing long-standing projectionists with a level of scepticism about the format's potential success. Such views might appear to be simply a case of short-sighted or head-in-the-sand thinking. However, there is evidence that this may have been the result of projectionists receiving conflicting information about the security of their jobs and about the future role of digital in the cinema. The picture is one that combines a general sense of confusion about the digital future with the shape of something more manipulative.

Both Marshall's and Blower's quoted accounts make it clear that some projection teams were not informed about their cinema's conversion until close to the conversion date, and only then through conversations with projectionists in other cinemas. In addition, Marshall and others were reassured that their jobs would be safe, only to find out later that this was not the case: 'We were told because we was technical managers we were quite safe ... but it never worked out that way.' In Gateshead, John Young, an IMAX projectionist, recalls being 'pushed out', contrary to the reassurances that had been made to him. 'My job looked secure', he recalls,

because with IMAX technically you weren't supposed to have no projectionists. So I knew that the IMAX cinemas would need projectionists ... because IMAX expected if they were going to phone you from America they would want to talk to the projectionist.¹³

Mick Corfield notes that, as a BECTU representative, these beliefs made it very difficult to convince projectionists to begin redundancy negotiations, and he describes a general reluctance on the part of projectionists to face up to the impending redundancies. He describes going to a number of training events run by the British Kinematograph, Sound and Television Society (BKSTS)—a trade organisation specialising in technical events and training for workers in the British film and television industry—‘and the projectionist training was how to splice a film, how to do this and do that’. He openly questioned the wisdom of such activities: ‘I kept saying, “I don’t understand why you’re doing this because you’re training people for jobs that are non-existent. If 95 per cent of your job is handling film and there is no film, what are you going to do?”’ However, it was clear that ‘their mantra was, “They’re always going to need a projectionist”.’

The BKSTS’s stance comes across clearly in their affiliated trade journal *Cinema Technology*. In the June 2004 issue, a report on a digital training day asserted that in the digital era ‘there will still be a need for skill and attention in the projection booth to ensure that the promise and capability of digital projection is delivered to the paying audience’ and that ‘the future looks bright’. Although the focus on digital training increased as the decade progressed, film-based training events continued (see, for example, 2006’s Focus on Film event, described in *Cinema Technology*, September 2006, and 2010’s Best Practice for Projectionists event in *Cinema Technology*, March 2010). Even at the turn of the decade, claims were still being made that ‘projectionists won’t lose their jobs if they remain flexible enough to cope with more and different product’, that digital projection was likely to ‘increase revenues and make all our jobs more secure’ (*Cinema Technology*, September 2008: 52), and that

the overwhelming view from those with experience of digital cinema technology is that while the traditional role of the projectionist will inevitably change, there will emerge a need for differently but equally skilled technicians to manage and maintain digital projectors. (*Cinema Technology*, March 2010: 21)

In addition to the above statement, the same article claimed that ‘individuals who wish to reskill should have the opportunity to do so.’

In this context it is, perhaps, unsurprising that projectionists kept telling Corfield: ‘My job’s going to be so much easier.’ Corfield’s response was to tell them that: ‘You’re not going to

have a job ... they're looking at ways of getting you out of the door because that's how they'll make the cost savings.' However, the institutional infrastructure—particularly the training events and projectionist-affiliated societies—were still geared towards a future built around film projection. It is, therefore, not difficult to understand projectionists' reluctance to begin redundancy negotiations when they were being informed from many different fronts—including their own colleagues—that their jobs would not only be safe but would become easier.

This scenario might seem less a question of deliberate duplicity than a combination of poor communication and a failure of imagination to understand that the projectionist would eventually become a non-essential and costly commodity. However, that is not to say that all discussions about the future of projection were equally innocuous. For Corfield, the potentially duplicitous nature of the industry was exposed during a demonstration of digital projection equipment at a Cinema Expo in Amsterdam, where those marketing digital projectors were advertising the potential savings that could be made by not employing projectionists, while simultaneously denying that redundancies would follow. Corfield notes that although the union knew this was the case in theory, 'it can't be clearer than when you've gone to a trade exhibition and someone's selling their machines, "And this is the savings that you'll make in projection" ... So, of course, we came back and said, "Look, the cat's out the bag".' He continues:

I knew that they were going to sell digital projectors and I knew that they were going to say that they didn't need a projectionist. So, I wanted to be able to look him in the eye when he told me ... in my own projection box [that that wasn't the case] even though he knew that everything he said to me was bullshit.

Despite possessing this information, the infrastructural short-sightedness meant that negotiations remained difficult. Chris Twedell, another BECTU representative and former projectionist, who became a manager in his cinema following the digital conversion, describes the difficult process of convincing projectionists that redundancy negotiations had to begin promptly:

Everybody had fight in them ... It was very difficult to make people understand that, 'We can't stop it, it is going to happen, we are going to be beaten by the technology and they will no longer need projectionists.'¹⁴

He continues:

My attitude, rightly or wrongly, was once they can replace you by somebody pressing a button, it doesn't matter what you do, you don't have any power, you can't go on strike and close the cinemas because they can get anybody to do it.

Corfield led redundancy negotiations with the Cineworld chain, which 'took eight months, were horrendously long, horrendously complicated', but which he feels resulted in a good package for the staff affected.

Some multiplex projectionists continue to work in their cinemas but not as projectionists. 'A lot of the stuff that projectionists do in the cinema that aren't recognised, they still needed that,' Twedell recalls. 'I wanted to stay in the industry, so I had to apply for one of these jobs ... I'm still responsible for the projection side ... but the job changed totally into more of a management job with some AV.' Atwill and Twedell worked at the same Cineworld site and the former reflects on the redundancies thus:

I hated it because it was something that I really cared about, and a job that I loved, and at the time I didn't have a new job lined up doing the same sort of thing. But you couldn't help feel even worse for the guys who'd been doing that job for the best part of 30 years, and all of a sudden the rug's been pulled. They had to apply for jobs downstairs at the cinema they'd been at since it opened. It did feel a bit callous and cold.

The final show and adapting to digital

In the same way that the arrival of the digital equipment marks a symbolic moment around which fears of redundancy collect in the interviews, the motif of 'the final show' performs the same function for narratives of loss and change. Thompson describes the final 35mm screening at the Empire:

I was the last one to lace up a 35mm projector in that place. The lads were just standing watching me and I said, 'When this is finished you're carting this out aren't you?' ... And there was a digital projector right behind, ready to put in its place. Once the film finished I went down the bottom end to do something and when I came back it was all just pushed out the place. Four of them just got hold of it and pushed it to one side, the plinth, the projector, the lot, and the digital was in its place ... I just thought, 'My god', you know, I just couldn't believe it. They had it all wired up ready and they said, 'Right just check it and on the next show you can go ahead.' I said, 'What, already?' And he says, 'Oh yeah, it's ready.'

At the point of his redundancy, Thompson was approaching his fortieth year as a professional projectionist. Film projectors themselves are hardy beasts, their lifespan often mirroring—or even exceeding—the duration of the careers of the projectionists operating them. This account is particularly moving, therefore, because the sense of loss—for the machinery, for a mode of work and for a career—is manifested through Thompson’s description of the treatment of the 35mm machines and the speed with which such a long-standing technology could be swept aside. In some respects, the equipment becomes a metaphor for the projectionist himself. Thompson’s attachment to the 35mm projector is contrasted with the technicians, whose actions towards it are reported almost as an assault, and there is certainly a sense that the technology has been mistreated.

This attachment to technology, and its symbolic relationship to manual work, is also found in Atwill’s account of ‘the final show’:

We started putting dust covers on things and ... people came to start installing the digital stuff ... and it was like, ‘Our beloved broken screen ten [projector] that nobody ever knew what was wrong with it for ten/fifteen years was actually going to go. I kind of miss it now.’

One of his fellow projectionists was responsible for lacing up the final show in screen ten, and, although Atwill admits to not remembering precisely what was said, he recalls that ‘it was quite profound, sort of “We’ll miss you the most”. As much as it was the biggest nightmare day-to-day it was the most missed projector because it had character.’

This attachment to, and anthropomorphising of, mechanical equipment is more than simply nostalgia for a lost past or defiance in the face of technological change. Rather, the removal of 35mm film projectors represents the removal of a certain type of work that, even in its most automated phase, demanded skill, knowledge and attention, from which much of the meaning of being a projectionist was derived. This loss is manifested in both a physical and sensory way. As Atwill notes:

I like the sound of projectors ... That was the biggest thing that I missed when I went back to Cineworld, when they’d completely got rid of the 35mm. I opened the door into projection and it being silent was so unnerving, and that was when it really hit home ... I’m used to there being, like, a bit of music playing, and you could see the guy at the other end ... and you’d hear that whirring and the ticking and you knew that things were running. It felt alive. It felt like a sort of living entity in itself. To then open the door and nobody be there, that’s when it felt cold. It

was a weird feeling and it was all because the business end of the projector wasn't clicking away and sounding beautiful.

The loss is embodied by the physical absence of projectors and other projectionists, but also the sensory loss of the sound of the projector running. This sensory loss was similarly felt by Mike Marshall, and before leaving the Quay, he struggled against it by taking advantage of the disused film projectors that had not yet been removed from the projection box: 'We used to just put the [film] projector on so you could hear it running.' By looping a length of film through the platter system 'you would hear the projector instead of all the fans'.

The digital environment required those who stayed to adapt to new ways of working. Although clarifying that he eventually 'got through it all right', Fawke describes being initially 'scared stiff' by the digital projector. He highlights the contrast between the 'big equipment' and the 'big knobs' that he was used to and the digital projector where 'a lot of the controls are very small and you're dealing with a small panel that controls everything'. The Tyneside Cinema in Newcastle, where Atwill now works as Deputy Technical Manager, has retained 35mm film projectors and a team of technicians to ensure the smooth running of the film programme though most shows are digital. Ray Reed retired in 2015, having projected at the cinema since the 1960s. He highlights the process of deskilling that has taken place. 'For me it's boring', Reed notes:

It's not projection anymore. What it is now is IT management. If you watch the kids upstairs, it's more administration. They're chasing films by email, they're chasing KDMs [key delivery messages] by email, they're emailing clients for private hires. It's an office job.¹⁵

Frank Gibson, a veteran projectionist who began working in cinemas in Coventry in the 1950s, shares Reed's views: 'I've got no time for [digital] ... because it's just like putting an ordinary DVD on ... Once it's all downloaded, that's it; you're not actually working ... it's not the same. I like to have hands-on.'¹⁶

Both Reed's and Gibson's sentiments echo Braverman's groundbreaking work on capitalist labour systems, in which he notes that after mechanisation (or in this case automation and digitalisation), the labour that remains for the worker is 'increasingly subdivided into petty operations that fail to sustain the interest or engage the capacities of humans with current levels of education' (1998: 3). Instead, 'these petty operations demand ever less skill and training' (ibid.: 3). For Reed, 'running 35mm was a skill', and although he views digital as

'kind of skilled' he believes that he doesn't possess the same level of IT skill as the younger members of staff. 'I've been deskilled. That's probably the way I feel . . . My skills are not needed in projection.'

One of the major effects of this deskilling is that it removes the connection between the projectionist and the audience and has eroded the art of presentation almost entirely from the cinema-going experience. Mike Williams, a former projectionist from South Wales, acknowledges that, historically, the job of the projectionist was to 'extend the night out for the enjoyment of the audience'. He recalls observing the audience as they left at the end of the screening and that 'you could tell that an audience had been entertained, you could feel it. And it made you feel good.'¹⁷ The removal of the manual, skilled labour previously required from film projectionists to put on a good show severs the projectionist's connection with the individual film performance.

This shift away from manual procedures returns us to where we started, and the wider shifts towards mechanised working processes experienced more generally across the twentieth century. The interviews conducted by Chicago-based Studs Terkel are significant here. His book *Working*, first published in 1974, includes the accounts of dozens of ordinary Americans who provide overviews of their working lives, often within a context where impending mechanisation threatens to anonymise productivity. One of the most common themes to emerge from Terkel's interviews is the pride which the workers want to take in the creative, skilled aspects of their jobs, and the sense that this is at the centre of their working identity. As steel worker Mike Lefevre states, 'everybody should have something to point to' (Terkel 2004: xxxii). Digital projection risks deferring the responsibility for putting on a good show from the projectionist to the computer terminal, and removes the sense of achievement that was at the heart of Williams's identity as a projectionist. Without this direct connection with an audience, work as a projectionist loses its meaning.

This erosion of agency is addressed by Reed:

[Digital projectors] are easy to run . . . The problem is when things go wrong you can't do anything. You have to get on the phone to a guy in London who gets into the projector via his laptop to find the fault and sort that out. You're just standing there, totally useless . . . With film you could probably get by if there was a problem. Squeeze it through. With digital you're totally in the hands of someone else. You've got no control.

This loss of control is key to the experience of the digital transition. Those who remain in employment have very little control

over how the film is displayed, and no control at all over the maintenance of the machinery, previously the heart of the job. Thompson's account of the removal of the 35mm projectors is moving because we can see the personal trauma inflicted by the transition from one machine, over which he had complete control and mastery, to another with which he has no such relationship. Digital projectors are sealed black boxes which only off-site technicians have the authority to open.

Some projectionists try to fight against this lack of control. Marshall's film loop is a minor act of resistance. In Leeds, Allan Foster at the Hyde Park Picture House continues to train young film projectionists and has wired the cinema's digital projector up to a button mounted on one of the remaining 35mm projectors, allowing him to completely bypass the computer terminal when starting a digital show. Atwill notes that it is still possible to tweak the timings of screenings using a digital projector to preserve a semblance of presentation. However, this isn't a 'live' process; once it has been set up, it is simply a matter of dragging and dropping successive films into a pre-existing, pre-timed playlist. There is nothing spontaneous or human about this type of projection.

What is at stake with the digital transition, then, is the sense of identity that projectionists derive from their work. Most directly, this sense of identity is threatened by redundancy. For those who remain in the industry, the story is one of negotiating identity in a transitional work space; the change in nomenclature from 'projectionist' to 'technician' in many cinemas is a literal labelling of this change. The small acts of resistance noted above are just some of the ways in which projectionists have attempted to reclaim meaning from a job which has changed beyond recognition, by grafting manual, tactile, creative elements onto clinical digital processes. They are attempts to retain control over a digital apparatus designed to lock them out, to re-imbue the work with an element of skill and human agency, and to return the sensory elements of film projection that digital projectors have removed.

Strangleman notes how much the discussion of 'the end of work' focuses on the transition from stability to instability, that in general 'a "job for life" is no longer possible, and those jobs that are relatively secure no longer provide meaning and identity for those lucky enough to have them' (2007: 87). For many commentators 'identification with work rested upon pride in a craft' (ibid.: 83). For the projectionists I have interviewed, the arrival of digital marked the end of projection as a craft, and with it—for the few still employed—a concomitant decline in meaningful work. That is not to say that projecting in the UK is

now completely devoid of meaning. Although the small number of accounts presented here do tend to embody a shift towards unsatisfying work, the interviews show that what it means to be a projectionist or a technician in a UK cinema has become fluid. They demonstrate the ways in which the projectionists have negotiated – and will continue to negotiate – the changes that continue to transform the industry.

What emerges from these accounts is a strong attachment to a mode of working that is now in the past. The current moment of decline provides a lens through which we can start to look back on that history, across the twentieth century, and ask questions about the changing nature and meaning of projection work. This article only begins to provide a framework through which we might begin to explore that labour, and it is clear that there is still much that needs to be done to illuminate the special kind of alchemy undertaken by the ‘man in the box’.

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Notes

1. Projectionists were usually men, though for more on the minority of women projectionists see Williams (1997), Harrison (2016) and the article by Wallace, Harrison and Brunson elsewhere in this issue.
2. David Sin, ‘Distribution: the logistics of distribution’ <<http://www.screenonline.org.uk/film/distribution/distribution5.html>> (accessed 10 May 2017).
3. For an overview of the film industry’s use of digital technologies, including some of the concerns it has raised, see Enticknap (2005), Swartz (2005), Mast and Kawin (2006), Crofts (2008, 2011) and Crisp (2015).
4. See also the timeline compiled by Digital Projection Ltd <<http://www.digitalprojection.com/emea/about-us/>> (accessed 14 December 2016).
5. All quotes from Phil Fawke are taken from an interview with the author, recorded 4 December 2014.
6. All quotes from Mike Marshall are taken from an interview with the author, recorded 22 June 2015.
7. All quotes from Mark Cosgrove are taken from an interview with the author, recorded 26 August 2015.
8. All quotes from Chris Blower are taken from an interview with the author, recorded 11 August 2015.
9. All quotes from Neil Thompson are taken from an interview with the author, recorded 11 November 2014.
10. All quotes from Adrian Pearce are taken from an interview with the author, recorded 20 October 2014.

11. All quotes from Mick Corfield are taken from an interview with the author, recorded 3 August 2015.
12. All quotes from Brad Atwill are taken from an interview with the author, recorded 10 November 2014.
13. All quotes from John Young are taken from an interview with the author, recorded 5 February 2015. Although traditionally IMAX performances were all shown from 70mm film, since 2012 IMAX have introduced a range of non-film-based projection formats including Digital 3D IMAX and IMAX with Laser.
14. All quotes from Chris Twedell are taken from an interview with the author, recorded 12 November 2014.
15. All quotes from Ray Reed are taken from an interview with the author, recorded 5 February 2015. A KDM is a code that is required in order for cinemas to gain access to the digital prints stored on their server. Without a valid KDM a film cannot be screened.
16. All quotes from Frank Gibson are taken from an interview with the author, recorded 14 October 2014.
17. All quotes from Mike Williams are taken from an interview with the author, recorded 24 August 2015.

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