

<b>Institution:</b> University of Birmingham		
<b>Unit of Assessment:</b> UoA33: Music, Drama, Dance, Performing Arts, Film and Screen Studies		
<b>Title of case study:</b> <i>The Machinery</i> : Transforming Cultural Heritage for the Twenty-First Century		
<b>Period when the underpinning research was undertaken:</b> 2007–2018		
<b>Details of staff conducting the underpinning research from the submitting unit:</b>		
<b>Name(s):</b>	<b>Role(s) (e.g. job title):</b>	<b>Period(s) employed by submitting HEI:</b>
Dr Caroline Radcliffe	Senior Lecturer in Drama	2008–present
<b>Period when the claimed impact occurred:</b> 2008–July 2020		
<b>Is this case study continued from a case study submitted in 2014?</b> No		
<b>1. Summary of the impact</b>		
<p>Radcliffe single-handedly <b>transformed public and professional understanding</b> of clog dancing from a rural, folksy vestige of a bygone age to an urban, modern form of creative engagement with labour and technology. By <b>informing attitudes about the origins and history of clog dancing</b>, Radcliffe successfully:</p> <ol style="list-style-type: none"> <li>1) <b>Enhanced cultural heritage preservation and interpretation</b> by changing the approach of curators and festival organisers;</li> <li>2) <b>Increased public awareness and affective engagement</b> in relation to industrial working practices;</li> <li>3) <b>Influenced creative practice of artists across the spectrum</b> with regard to clog dancing and noise music.</li> </ol>		
<b>2. Underpinning research</b>		
<p>Radcliffe is the only academic to have researched and published archival historical research on clog dancing in a scholarly context and was the first to recognise its significance as a form of intangible urban and industrial heritage. Radcliffe's enquiries have undermined prior interpretations of clog dancing as a uniquely agrarian folk practice by identifying a form of Lancashire clog dancing as a creative response to women's and children's industrialised labour in nineteenth-century British textile mills. As embodied practice-research (PR), the generation and delivery of the research and the impact are closely intertwined with the key research findings as follows:</p> <p><b>Key research findings:</b></p> <p><b>RF1.</b> Radcliffe was the first scholar to identify the relationship between clog dancing and industrial, urban, working-class culture, recognising and locating clog dancing as a dance craze in the music halls of nineteenth-century Britain, thereby opening up its potentialities to be explored as a PR project. Radcliffe's research into this relationship shows how clog dancing was a practice developed by the women and children who worked in the textile mills as a form of creative urban expression (RO1, 2).</p> <p><b>RF2.</b> Radcliffe challenged Karl Marx's model of dehumanised, "alienated" factory workers by providing a tangible example of workers' ability to coalesce with and embody machines through creative and physical means; this enabled them to find a positive way of addressing some of the stresses and illnesses of repetitive labour and to create new forms of artistic expression (RO1–RO3).</p> <p><b>RF3.</b> Radcliffe's research also radically altered the history of industrial dance and noise music. Previous scholarship on dance and labour had attributed the origin of industrial dance to twentieth-century Futurist machine dances and Fordism; however, Radcliffe recognised the relationship between the textile mill workers of the Industrial Revolution and the sounds</p>		

and movements of the machines they operated, thereby revising the earliest cited dates of industrial dance by over 100 years. Radcliffe researched steps directly traceable to 1820, taught to her by Pat Tracey. Using a process of PR, Radcliffe tested the steps against cotton machinery sounds, rhythms and movements at Quarry Bank Mill in order to verify Tracey's claims that they were derived directly from specific Lancashire machine components, re-enacting the working movements of nineteenth-century cotton workers in situ with the machines (RO3). Similarly, the history of industrial noise music had been attributed to the early 1970s, with the advent of Detroit techno followed by the drum machine of the 1980s (RO3); this has now been revised and acknowledged in citations and references in academic scholarship,\* in the light of Radcliffe's PR.

**RF4.** Radcliffe's research revealed new and unexpected connections between processes of automation used in early industrial weaving processes (the embodied hauntologies of the Jacquard loom punch card, an early form of computer hardware) and modern digital technologies (binary coding/weaving practices). Radcliffe also revealed previously unrecognised connections between the industrial dance histories of Britain and India, as industrialised labour and textile production was exported and imported due to British colonialism and the American Civil War cotton blockades (RO3). As a result, Radcliffe was invited by the European Research Council, as part of the funded 'Penelope project', to speak at their Homo Textor conference (2019) at the Research Institute of the Deutsches Museum and to contribute towards their publication on weaving technologies (due 2021).

**RF5.** As part of her embodied PR, Radcliffe invited artist, Sarah Angliss, to collaborate on *The Machinery*, a live performance piece that brings clog dancing alive for contemporary audiences (RO2). The sensate video technologies proposed by Radcliffe and developed by Angliss were created solely for this performative purpose, allowing the live dancer to interact with both a live video feed of pre-recorded projected images of factory machines and an audio feed of an original noise music composition recorded by Angliss and Radcliffe from historic cotton machinery. In this way, the dancer appears to simultaneously interact with the machinery on screen *and* onstage. The dance steps, connecting the Lancashire "heel and toe" dance form with production in the nineteenth-century cotton mills, also reveal Marx's 'docile and pliant' women and children who worked the machinery of the mills as the creators of the clog dancing steps, developed in response to the rhythms of the looms. The work demonstrates ongoing analogies in repetitive working practices through a comparison of the nineteenth-century industrial mill to the twentieth-century digital call centre (RO1–RO3). In 2018, Radcliffe was awarded Arts Council England Digital funding to develop the performance further with filmmaker Jon Harrison, creating an immersive 3-screen video and sound installation, launched at Ironbridge Gorge Museums, to tour museums and art galleries (RO1).

\*e.g., Adam Parkinson and Alex Mclean, 'Interfacing with the Night'. EAVI (Embodied AudioVisual Interaction Research Group), Goldsmiths University, London, 2014.

### 3. References to the research

**RO1. Video of 3-screen video and sound installation** [The Machinery](#) (password CLOG) (flat-screen version of immersive 3D installation, lower resolution than live projected film), 2018.

**RO2. Video of live performance** [The Machinery](#), 2016 at Algomech.

**RO3.** Caroline Radcliffe and Sarah Angliss (2013), 'Revolution: Challenging the automaton: Repetitive labour and dance in the industrial workspace', *Performance Research*, 17:6: 40–47. DOI: 10.1080/13528165.2013.775758

**RO4. Exhibition** 2018, *The Marvellous Mechanical Museum*, Exhibition Catalogue, Compton Verney. Caroline Radcliffe, section on *The Machinery*, p. 13. ISBN: 978-1-9999659

### 4. Details of the impact

Through her embodied PR, Radcliffe has **changed public and professional attitudes about clog dancing** across the spectrum (RF1, 3); specifically, she has **enhanced cultural heritage, raised awareness** and **influenced creative practice**.

### 1) Enhanced cultural heritage preservation and interpretation by changing the approach of curators and festival organisers

Radcliffe **changed the way curators think** about how performance and historical research can intersect to produce an affective exhibition experience. According to the Head of Research and Public History at the Science Museum, London, the pilot performance of *The Machinery* at the museum's 2015 'Music, Noise, Silence' Festival was pivotal, revealing how the innovative entanglement of sound and visuals could result in both a display, in the traditional context of an exhibition, but also in an "event" in and of itself (S1; RF2, 5). The radical departure of *The Machinery* was similarly recognised by Arts Council England who described the power of this new kind of exhibition installation as follows: 'it's really hard to imagine how awful the working conditions were and how awful the environment was [...] we need work like *The Machinery* to help us make that imaginative leap' (S2; RF2, 3).

This change was echoed in **changes to curatorial practice and festival programming**. For example, the curator of Compton Verney's 'The Marvellous Mechanical Museum' exhibition (June–September 2018), identified Radcliffe's research on the relationship between the human and the machine as the missing link in their exhibition on automata (RF2, 4, 5). To fill this gap, not only did Compton Verney commission *The Machinery* — the first time an installation of its kind had been included in an exhibition there — Radcliffe also created a dedicated gallery to showcase it. This speaks to the significance of the work, which the curator confirmed stating that, 'This is a performance that is like no other [...] it made perfect sense to make it a pivotal piece in the exhibition' (S2). 'The Marvellous Mechanical Museum' attracted 26,600 visitors and 8,573 attendees (S2) for associated programmes and workshops, while Radcliffe's work was flagged as remarkable by most of the major national newspapers (e.g., *The Guardian*, *Observer*, *Times*, *Independent*). *The Times*' reviewer, for example, testified to the radical new approach at work by describing *The Machinery* as an 'installation that sits proudly as both a historical document and emotive work of art' (*The Times Literary Supplement*, 22 August 2018).

Elsewhere, Radcliffe **changed the practice of festival organisers** who sought to connect Britain's intangible heritage with a diverse range of festival attendees. For example, *The Machinery* was directly responsible for the success and sustained development of the UK's Algomech Festival, a cutting-edge showcase of digital technology as creative practice. Radcliffe's work was first included in the 2016 festival, attracting 41,210 live and online participants (S3; RF5). The Algomech founder, and leading figure within the algomech and live-coding scene (now represented in 100 cities internationally), dubbed *The Machinery* the 'standout performance' of Algomech 2016 and confirmed it **was a 'huge influence on whether I carried on with the festival'** (S3). For them, the immersive power of the work embodied the nebulous elements of Algomech, such as weaving, technology and movement, articulating the link between jacquard loom coding and contemporary live coded weaving and was a 'foundational' work for the festival (S3; RF4); Algomech again showcased *The Machinery* in 2019, this time including the ACE funded film version (41,245 festival participants) (S3; RF5). *The Machinery* was also central to the 2018 World Heritage Day (WHD) where, as the first work of its kind to be included by WHD, it was launched and hosted by the Ironbridge Institute at the Ironbridge Gorge, a UNESCO World Heritage Site (2,420 visitors to *The Machinery*). As the museum's Director of Collections and Learning testified: 'we always want to do more to be relevant for our visitors, to encourage debate and discussion and to do exciting, new, different things. So for us this sort of digital art installation is perfect. **It's engaging new audiences'** (S2; RF1, 2, 5).

*The Machinery* installation was also due to be exhibited in *The Hive* gallery in Birmingham (20 March–15 April 2020), and during October 2020 throughout the Derwent Valley Unesco World Heritage Sites: Cromford, Mill, Strutts North Mill and Belper Heritage Centre, with further funding secured from the Arts Council of England and *The Hive*. These events had to be postponed until Spring 2021 due to Covid-19. Each of the sites will use *The Machinery* to interpret their collections and intangible heritages, with an expected footfall of 15,000+ visitors and over 2

million online engagements, and 715 local primary school children and family participants in educational workshops centred on Radcliffe's research. This will include Special Educational Needs (SEN) participants in industrial noise and movement workshops at Argent and Glasshouse schools, Ruskin Mill Trust. *The Machinery* is then going to Lanark Mills, Scotland in 2021 (S11).

## 2) Increased public awareness and affective engagement in relation to industrial working practices

Radcliffe **raised public awareness** through her engagement with national media, appearing on BBC Radio and TV programmes with a nationwide reach. Notable examples include BBC4's *Dancing Cheek to Cheek* (Episode 2, 2014: c.1.1 million viewers for original broadcast; iPlayer views c.1 million, with 7 subsequent broadcasts), hosted by dance celebrity Len Goodman who stated: '**I never imagined it was such an important dance during the nineteenth century** and had such strong roots to the machines of the industrial revolution. Caroline's input really **added an engaging aspect** to the episode' (S4). This was the first time the popular programme had ever featured clog dancing and in so doing afforded it the same credence and contemporary recognition as more conventionally popular forms of dance. Radcliffe was crucial to such a portrayal, as the programme's producer confirms: '**Caroline made a huge difference to the documentary** as the subject of working class dancing is something that is hard to access, not just in terms of research but also how to illustrate on TV/platforms. Caroline gave us unique information about the historical and cultural context of the steps'; elsewhere, the series producer reiterates: 'we realised that far more research had been done into elite forms of dance than the types of dance enjoyed by ordinary people [...] Caroline's research into clog dancing **guided our whole approach** to this subject and we were very lucky that she was willing to share her insight and expertise on screen, her contribution ensured that viewers came away feeling that they'd been entertained and that they'd learnt something really fascinating' (S4; RF1, 3).

Elsewhere, the *Antiques Road Trip* (13.9 million viewers in 2019) used Radcliffe's research to **explicitly counter existing narratives** around clog dancing (Episode 23, 2019). By locating clog dancing in the programme within the industrial context of the Lancashire Mills, the programme **revealed to the public how clog dancing 'began on the factory floor'**; as the show's producer states: '[it] really helped speaking to Caroline because what she told me cemented the idea that if we were going to show clog dancing on BBC we should show it in its spiritual home' (S5; RF1, 3).

Meanwhile, the development of *The Machinery* and its inclusion in exhibitions and festivals around the UK (e.g., Compton Verney Art Gallery, Ironbridge Museums and Algomech) allowed members of the public to **engage with clog dancing and intangible heritage in a more immediate way**. That audiences responded on an emotional level — rather than simply absorbing or processing historical information — is evidenced in their feedback, such as: 'I saw the original when it was at Algomech, it really blew me away. Very, very emotional — to see it live' (S6). This affective engagement is significant as **it changed not only how the public understood clog dancing, but how they felt about it** too. This in turn generated an **affective engagement with the modern world of work**, causing audiences to reconsider their own working conditions in relation to the current climate of precarious, zero-hours employment and concerns over workplace wellbeing: 'Having worked in an environment where there is a call centre, I can see the crossover to working in the factory looms, because there you are stuck to your headset, and just having to respond when the light goes on and you've got a call coming through' (S6; RF2, 5). Similarly, Ironbridge's Director of Collections and Learning recognised the 'direct comparison that can be made between the injuries both to mental health and to physical health in the mills of the eighteenth and nineteenth centuries, to call centres today' (S2; RF2, 5).

## 3) Influenced the creative practice of artists across the spectrum with regard to clog dancing and noise music

As Radcliffe's work unearthed the more urban and broader origins of clog dancing (RF1), it **allowed the form to be reinterpreted in a contemporary context**. By generating new ways of thinking, Radcliffe thus **influenced the creative practice** of professional dancers, actors, sonic artists, algorithm specialists, filmmakers, TV producers and musicians alike; most obviously this was achieved via the collaboration to develop *The Machinery* in which Radcliffe worked with sound and video artist Sarah Angliss. Together, Radcliffe and Angliss recorded and composed *The Machinery's* noise music, combining the sound of Radcliffe's clog steps with the cotton machines. Angliss states how **Radcliffe helped her to re-contextualise clog dancing**: 'when Caroline actually danced the dance to me...I was absolutely astonished because it completely sort of flipped my understanding of clog' (S7; RF3). During this collaboration, Angliss employed cutting-edge sensate technologies to develop a completely unique computer programme involving an unusually high level of live intermediality (RF1).

On discovering *The Machinery*, the choreographer for *Cotton Panic* and its actor/director, Jane Horrocks, were also **inspired by Radcliffe's radical interventions**; they proceeded to draw directly from the work when devising their own performance piece, *Cotton Panic*. Premiering at the Manchester International Festival 2017, *Cotton Panic* reached over 8,000 audience members, the dance elements of which the choreographer saw as a direct response to *The Machinery*. Indeed, having never worked with the clog form before, they praised how ***The Machinery* 'opened up an area that I wouldn't have dreamt of having anything to do with'** (S8; RF3, 4, 5).

The performance poet for the *Grafters* exhibition also **produced a new cultural artefact** in response to Radcliffe's work, one which ultimately **changed their creative practice** moving forward. Their poem 'Silent Monitoring of Live Calls' (2016) was directly inspired by a recording of *The Machinery* and was first performed at the Manchester's People's History Museum. As the poet states: 'In terms of practice it was the first time I'd used a track as a backing for performing a poem, so it was the first time I considered doing that and since then I've worked with much more multimedia approaches to poetry and performance' (S10; RF1, 3, 5).

South Asian Arts UK (SSA-UK) **changed their performance**, THREAD, in response to Radcliffe's research, which led the kathak dancer to dance kathak steps in clogs to emphasise the intercultural textile and dance connections of textile workers, discovered through invited, practical workshops with Radcliffe. CEO of SSA-UK stated that this 'exploration between clog dancing and kathak led to us deciding to present our piece THREAD in clogs' and that Radcliffe's work helped them 'to connect Victorian England and the textile[s] of India' (S9; RF2, 3, 4).

## 5. Sources to corroborate the impact

- S1. Article by Head of Research and Public History, The Science Museum (2015).
- S2. Promotional video of *The Machinery* at Compton Verney (October 2018) and document from Compton Verney with audience attendance figures (November 2018).
- S3. Video interview with Algomech founder (May 2019) and email from the founder with audience attendance figures (2020).
- S4. Emails from Len Goodman and the producers of *Dancing Cheek to Cheek* (2020).
- S5. Transcript of interview with the Producer of Antiques Road Trip from STV (2018).
- S6. Audience feedback from Algomech and Compton Verney (2018-2019).
- S7. Video interview with Sarah Angliss at Algomech (2019).
- S8. Transcript of interview with the choreographer for *Cotton Panic* (2018).
- S9. Email from the CEO of SSA-UK (August 2018).
- S10. Transcript of interview with poet (2018)
- S11. Promotional poster for *The Machinery* at The Hive (20 March—15 April 2020) and preview video for Derwent Valley Discovery Day.