

# Storywalking as transnational method: from Juteopolis to Sugaropolis

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# Storywalking as Transnational Method: From Juteopolis to Sugaropolis

*Mona Bozdog*

## Introduction

But a lassie's hands are nimble, and a lassie's wage is sma  
So the women o' Dundee worked in their place.

Sheena Wellington, *Women o' Dundee*

On 4 May 2018, at 10 p.m., on the former Timex Harrison Road site, 300 voices are singing Sheena Wellington's *Women o' Dundee*. They have spent the three hours leading up to this moment immersed in their city's recent history, learning more about the women who gave Britain its first massively popular home computer, the ZX Spectrum, and how this eventually sparked Dundee's current success in the games and digital technology industries. They walked through Camperdown Park and up Harrison Road to the former Timex factory, listened to oral herstories of women who worked on the assembly lines, played video games that paid homage to the ZX Spectrum, and watched Sir Clive Sinclair as he celebrated the production of the millionth ZX Spectrum in Dundee.

This was *Generation ZX(X)*,<sup>1</sup> a multi-media, mixed-reality event which aimed to develop hybrid video game/performance design methods for engaging with lived experience and oral herstories of specific sites (Figure 10.1). I propose that the development and design methods of *Generation ZX(X)* provide an innovative way of enlivening archives that can be productively applied to transnational histories. The methods, strategies and techniques used in *Generation ZX(X)* outline a design framework called storywalking. Storywalking invites a critical engagement with the archive and the site, enlivening the archive and transforming oral histories, lived experience and collective memory into gameplay.



Figure 10.1 *Generation ZX(X)*, photo by Erika Stevenson.

## Welcome to She-Town

The story of She-Town begins in the 1822 when the first bales of jute arrive in Dundee dramatically changing the landscape and the social fabric of the city.<sup>2</sup> The city expanded quickly and by the 1850s more than half of the population's livelihoods depended on jute, earning Dundee the nickname 'Juteopolis'. Jute was imported from Bengal which meant that the economic development of Dundee and the socio-political destiny of its people was bound to jute cultivation, export and production in India. The raw jute prices, the production costs in Calcutta and the stock market in the United States all affected the prosperity and working conditions of jute workers in Dundee.<sup>3</sup> The jute industry relied heavily on female labour: in 1901, 31% of Dundee's female population was employed in the mills and factories,<sup>4</sup> leading to Dundee being known as She-Town. Women predominantly supported the textile industries, playing an important role in household economies.<sup>5</sup>

Today, Dundee is one of twelve hubs of game-making activity in the UK, acknowledged for its game development, game research and education clusters.<sup>6</sup> Although seemingly unrelated and almost two centuries apart, these two moments in Dundee's history are united by an invisible

thread of female labour.<sup>7</sup> Assembling these threads helps us understand the complexities of the city's history, rendering visible its problematic past of imperial prosperity and transnational development. This prosperous past, its subsequent rebranding as a 'City of Discovery' and cultural transformation was supported by working women,<sup>8</sup> the nimble hands of the spinners and the weavers in the jute mills and factories and, later, on the assembly lines in Timex and National Cash Registers – NCR. The key to understanding Dundee's international digital industries present lies in its transnational manufacturing past and its reliance on gendered labour.

In the jute mills and factories, men occupied positions of power, authority and control over women who were delegated to the monotonous and repetitive jobs of spinning and weaving. These jobs were categorised as 'low-skilled' or 'unskilled' and were paid significantly less. Furthermore, the mill-girls earned less than the weavers and were considered less respectable due to their lower social status, 'dirty' work conditions and dress. Women had few opportunities for vertical mobility through promotion, or even horizontal mobility by moving from the spinning mill to the weaving factory. Despite the economic reliance on female labour, She-Town remained patriarchal.

These gendered hierarchies remained after the Second World War. Due to the decline of the jute and jam industries, Dundee received Development Area Status under the Decentralisation of Industry Act of 1945. This attracted American manufacturing multinationals like Timex and NCR who took advantage of regional development grants, trade protection, lower running costs and salaries comparatively lower than those in the USA and the rest of the UK. Furthermore, as Valerie Wright observed: 'Dundee's "cheap" female labour force was positioned as a prominent selling point to industries considering locating in the area'.<sup>9</sup> The nimble hands of Dundonian women were offered as an incentive to the 'new' industries.

The UK Time Company (which from 1954 onwards was known as Timex) opened its mechanical watch production in Dundee in 1946; by the 1970s it was employing more than 6,000 people, predominately women.<sup>10</sup> In the late 1970s, however, demand for mechanical watches started to decrease and in the 1980s Timex was subcontracting work to electronics manufacturers.<sup>11</sup> The move into electronics brought about partnerships with IBM and Sinclair. Timex started to look for cost-cutting alternatives and the possibility of new plants in the Philippines, Taiwan, France and Portugal. In Dundee, redundancies and strikes were rising and in 1993, after eight months of industrial action, Timex left Dundee. This has become one of the most painful moments in the city's history, and for more than two-and-a-half decades, strike action and Timex have never been separated in local memory. The impact that Timex had on the

city beyond the strikes has always been overshadowed by those final eight months. During the strikes the women were a collective crowd, many voices united as one, whereas men, who were conveners and shop stewards gained individual visibility. Many women felt that the Camperdown building became militant when the men arrived.<sup>12</sup> The women created their own structures of power within and despite official structures: running shops and beauty parlours in the bathrooms, collecting money for each other's bills, baby showers and hen parties, organising outings and anniversaries, and lending each other money.<sup>13</sup>

An under-discussed and somewhat serendipitous consequence of Timex's presence in Dundee is the formation of the local games industry. In the early 1980s, as part of their move into electronics manufacturing, Timex started subcontracting work for Sinclair Research. As a result of Sir Clive Sinclair's insistence that the Sinclair computers would always be retailed at affordable prices, and because they were easy to programme,<sup>14</sup> the ZX 81 and the ZX Spectrum had a major impact on the development of the British games industry.<sup>15</sup> Because it was assembled in Dundee by a cheap workforce, the retail prices could be kept low. It is often boasted that 'every house in Dundee had a computer' and although this is an exaggeration, many households that, ordinarily, could not have afforded a computer could get one at discounted rates. The computers were sold at discounted prices to Timex employees, and at factory outlets, whereas some 'fell off the back of the lorry'.<sup>16</sup> The predominance of the computers in the city, the presence of amateur computer clubs (Kingsway and Dundee Institute of Technology) along with development pioneers like Dave Jones,<sup>17</sup> Steve Hammond and Mike Dailly, sparked Dundee's future in games development and education. Whilst the first computers were assembled by women, they were used by men. This is another segregation along gender lines and one which continues to underpin the video games industry today.<sup>18</sup> Nina Huntemann changes the focus from representation in video games to the division of labour in the hardware production process and discusses female labour at the opposite sides of the process, in the manufacturing of hardware, 'the shop girl', and in showrooms, 'the prop girl', demonstrating and selling the hardware and software of video games.<sup>19</sup>

The 'shop girl' today reminds us that not much has changed in how women's work is valued in the creative, digital economy. These transnational and gendered networks of production unite the combined Dundonian heritage of jute, Timex and video games. These aspects of the city's herstory informed the conceptual design of *Generation ZX(X)*. The audience were invited to witness and complete the work, but also to perform solidarity, play, memory, site and community. They temporarily built a new Timex from the ruins and memories of the old. The themes

which ran throughout the project were the invisibility of female labour and women's voices (both in the games industry and in Timex's recent history), the fragmented nature of memory, the conflict between history and collective memory, conviviality, solidarity and 'sisterhood', boisterousness and playful irreverence and subversions of power and inter-generational dialogue and exchange.

### **Generation ZX(X) – playing with lived experience**

The audience gathered in Camperdown Park to 'celebrate Dundee's ZX Spectrum heritage, the video games born out of it, and the women who made it all happen.'<sup>20</sup> Throughout the night they explored the park searching for snippets of interviews with the women who built the ZX Spectrum computers on the Timex assembly lines and played a series of video games inspired by those stories. The event was structured as a four-part experience: an audio-walk, a 'play party', a film projection, and a musical performance.<sup>21</sup> These four components developed simultaneously and informed each other. *Generation ZX(X)* illustrates the tenets of a typical storywalk: a melange of modes of engagement (performance, walking, playing and singing) which are inspired by a specific site and the lived memories of that site. These multiple modes of engagement explore different aspects of an archive to capture, preserve and share oral histories and lived experience in diverse ways with diverse audiences. In what follows I will discuss the audio-walk and the three games to illustrate how lived experience can inform and shape the design process.

*Generation ZX(X)* first took the audience on a journey through Camperdown Park, where they encountered the voices of eleven women who used to work in the Timex factory. They were positioned in various locations around the park, a balloon marking the place where a specific sound file should be played. The number on each balloon corresponded to the number of the audio file on the audience's phones, 208 in total. The balloons were colour-coded, each colour corresponded to an interviewee. The audio files were thematically grouped in five categories: 'three words', 'working on the computers', 'working in Timex', 'the strikes' and 'fun and friendship'. Each category was mapped to a certain area in the park. To the women's voices I added my own by recording my fieldnotes and using them to contextualise the interviews, offer additional information,<sup>22</sup> and remind the audience that the answers were shaped and driven by my questions thus exposing author bias.

The audience arranged the material by moving through the park, so a part of the creative editing inherent in the Verbatim form was delegated

to them. As they explored the memories of Timex together, they were invited to perform conviviality, solidarity and community. Sharing phones to access the soundfiles facilitated group formation and inter-generational exchange as audience gathered around them to listen. Convivial walking aimed to facilitate dialogue and bonding as the audience adjusted their pace, rhythm and direction to accommodate each other and to share their own memories and experiences of Dundee.<sup>23</sup>

In the initial audio file, I also wanted to destabilise any illusion of ‘absolute truths’.<sup>24</sup> I wanted to embrace the ‘unreliable’ and personal nature of memory,<sup>25</sup> the plurality of herstories but also the creative agency facilitated by the invitation to remember. As Tim Ingold says:

In reading, as in storytelling and travelling, one remembers as one goes along. Thus, the act of remembering was itself conceived as performance: the text is remembered by reading it, the story by telling it, the journey by making it.<sup>26</sup>

Remembering happened during and in between listening to the audio files, and in walking along and across paths, with others.

The audience were then escorted to the former Timex Camperdown building, where a pop-up arcade was set up (Figure 10.2). In the custom-built arcade cabinets, they could play two games (*She-Town* and *Assembly*) designed by Abertay student team *Retrospect* and Abertay Game Lab staff. The third game, *Breaking out of the Frame* (*BootF*), was projected onto the factory building and it was controlled by the crowd as they moved left and right together.

The *Assembly* game is played on three monitors encased in a cabinet with two buttons, one on top and one to the side.<sup>27</sup> The three monitors were side by side, allowing the three players to watch the other’s play space, learn from one another, strategise or communicate. We have called this internal semi-spectatorship – the game’s ability to encourage and support teamwork and increased attention to another’s play space.<sup>28</sup> The game adopted a ‘girl punk’ aesthetic as a visual tribute to the women of Dundee, who have been described as strong, independent and feisty. Pink was also



**Figure 10.2** *Assembly* (left), *She-Town* (centre), and *Breaking out of the Frame* (right), photo by Erika Stevenson.



the colour of the Timex new-starts uniform (known as Pinkies) that all the interviewees remembered fondly. These elements contributed to the game's abilities to act as a catalyst for community formation, camaraderie, conviviality and togetherness.

*She-Town* is a third-person platformer. The player controls *Pinkie*, a pixel-art avatar in a pink overall, as she makes her way through five factory levels to collect the letters that spell Timex. Each letter unlocks a different chapter in the history of 'She-Town' from its shipbuilding and whaling industries, the textile and jute industry, the manufacturing industries (Timex and NCR) to its most recent creative industries.<sup>29</sup> To facilitate access, the games were installed on-site in two arcade cabinets designed by Ursula Cheng and Alice Carnegie. The arcade cabinets fulfilled similar functions to the custom-built installation for *Assembly*: they were colourful and bold, inviting external and semi-spectatorship and allowing an over-the-shoulder viewing angle. This type of design and curation which encourages semi-spectatorship not only enhances the game's potential for social play leading to bonding and community formation but also reduces the anxiety and intimidation of participation, making the game more inclusive, inviting and accessible.

The game's aesthetic and design reference the ZX Spectrum and arcade games and anchor the audience's experience in a certain moment – the early eighties when the Spectrum was built in the Timex factory. The game's nostalgic design and aesthetics paid homage to the heritage of the Spectrum and was intended as a celebration of its influence and impact. Sloan argues that 'nostalgic imitations can be regarded as a form of critical engagement with the past framed by personal and collective memory':<sup>30</sup> whilst the Spectrum and its games are fondly remembered and celebrated, the history of the labour behind them is mostly forgotten. *She-Town* can thus be read as a critique of the dissociation between the worker and the work which leads to a celebration of the former (evidenced by the nostalgia design and the blooming retro games scene) and erasure of the latter. This 'commodification of videogame nostalgia' can be fruitful if explored creatively as well as critically, if it challenges the conditions of their production and reception both in the past and in the present.<sup>31</sup> This echoes Huntemann's observation about the value, position and acknowledgment of female labour within the transnational game production networks.<sup>32</sup>

If *Assembly* allowed the audience to briefly 'play' on a simulation of an assembly line, and through this shared experience of gameplay to create a temporary community, *She-Town* allowed them to reflect on the lacunary therefore creative/interpretive nature of memory and history. Nostalgia, memory and ruin are intrinsically connected in the game's aesthetic and design. *She-Town* foregrounds the incomplete, discontinuous and selective



nature of history as it comes into conflict with the lived collective memory. Playing both games on the site of the former Timex factory, now a new factory, it also foregrounds the conflict between history and collective memory at a time when the former threatens to erase and replace the latter. The games and site prompt people to recall what they had previously forgotten.

For *BootFI* worked with Niall Moody to develop a game which created opportunities for audience to play together and explore recent episodes in Dundee's history.<sup>33</sup> The project aimed to demonstrate that people of all ages form communities, and that together they make their city's history. This history is not fragmented but a continuous narrative of specialised and skilled labour passed on from generation to generation. This was reinforced by the visuals where the shipbuilding industry transitions into the whaling industry, followed by the jute industry and finally the electronics manufacturing industry. The final canvas was an image of Dundee with a 'Welcome to She-Town' neon sign, thus bringing together all the narrative threads and themes of the event. Projecting it onto the factory wall invited the audience to literally uncover the hidden layers of history by moving 'on' it. *BootF* is the epitome of convivial gameplay which generates togetherness and community. It is spectacular and accessible, inviting everyone to play along; it is performative and through its symbolic and expressive mechanics holds the potential for transformation; it transforms gameplay into an embodied narrative experience as the moving bodies of the players drive it forward; and its design responded to a story and a site, constantly adapting to both.

### **Storywalking: a framework emerges**

Storywalking was used in *Generation ZX(X)* as an arc for movement and story development, a plotting of environments, movements and actions. It was developed as a technique which draws from site-specific performance and game design to combine walking as an aesthetic, critical, and dramaturgical practice of reading and performing an environment, with designing interactive, complex, sensory and story-rich environments for a moving, meaning-making body. In hybrid environments, site acts as storyteller, symbol, and structure, and becomes an active component 'in the creation of performative meaning, rather than a neutral space of exposition'.<sup>34</sup>

In working across performance and video games I explored various models of experience design. The resulting event responded to a 'memory site' by inviting the audience to engage with and uncover the lived collective memory deposited there, through live performance and

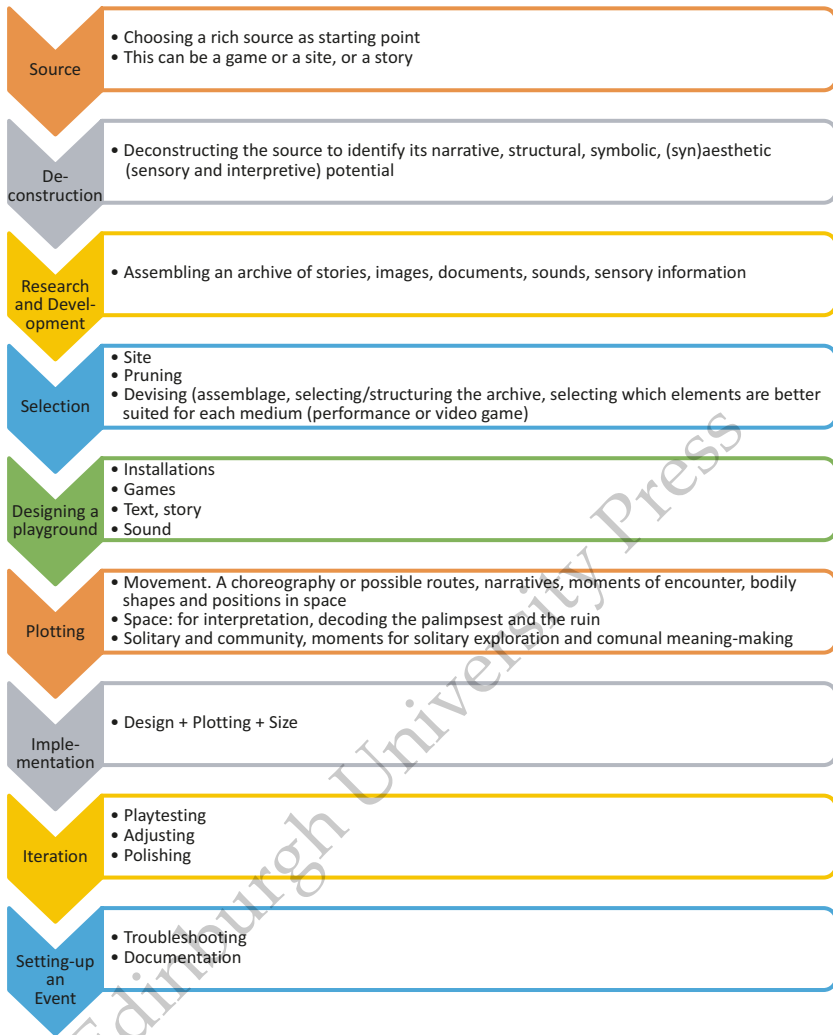
gameplay.<sup>35</sup> Jenny Wüstenberg asks: 'how is transnational remembering made local or grounded in concrete memory sites and how are such sites made transnational?'<sup>36</sup> The memories of Timex in Dundee are intermingled with those of workers at the Timex plants in Portugal, or France, to create the transnational memories of Timex in Europe. But although connected they are specific and ultimately bound up with the site itself. Susannah Radstone emphasises the importance of 'locatedness' of memory in transnational sites and the risk of its erasure particularly because of its specificity.<sup>37</sup>

In *Generation ZX(X)*, digital technologies uncovered these memories whereas the site-specific nature of the performance required the audience to travel to the site to experience it in all its locatedness and specificity. The disciplinary hybridity of this methodology seems particularly suited to capture, preserve and promote the specificity of transnational memory sites. Crossing the factory gates became an opportunity to write over the memories of the strikes by unearthing older memories of conviviality and sisterhood, of a factory where nearly 2,000 women worked together. But also, the chance to create new memories for the women of Timex, of the industry's acknowledgement and gratitude for their labour and potentially of a new-found pride in witnessing the heritage and impact of their work. The site's complexity invited multiple readings: a depository of collective memory, a transnational site, a palimpsest, a ruin, a ghost, the last bastion of union action in Scotland, the cradle of Scotland's video games industry, a factory divided across gender lines, a utopian space where women created their own structures of power within and despite official structures or a dystopian space where women's access to knowledge, training and equal pay was tightly controlled by the powerful few. Any one of these readings is as valuable and important as the next, and none takes precedence over the other.

Designing a storywalk (Figure 10.3) is not simply designing a story, or an environment, or indeed a choreography but rather designing a world full of possible journeys. These journeys foreground remembering, or discovering, or rediscovering places, people and events, a celebration of the walk as an aesthetic practice and of games as performances of remembering.

## From Juteopolis to Sugaropolis

In *Generation ZX(X)* I assembled oral histories and archival materials relating to women's labour in the Timex factory: photographs, videos, audio recordings and interview transcripts, but also places with their narratives and sensory identities, picket signs, games and songs. These were carefully dispersed 'across multiple delivery channels for the purpose of creating a



**Figure 10.3** The storywalking process. © Mona Bozdog.

unified and coordinated entertainment experience’, in an embodiment of Jenkins’ definition of transmedia storytelling.<sup>38</sup>

The voices of the women who worked in Timex were encountered in the park as the audience enacted their walk to work. The presence of the disembodied voices was intended as a reminder of their absence, mirroring their invisibility in the official histories of both Timex and the games industry. Verbatim and storywalk techniques were combined in the collection and editing of oral histories and their ‘plotting’ and arrangement in the space. This kind of open dramaturgy can help to negotiate and

foreground the complexity of transnational spaces which resist singular interpretation. The dramaturgy of assemblage is performed both at the production level in the process of devising an open work through the composition and selection of elements and moments of encounter, and at the level of reception, where the audience move through these open structures and assemble the fragments in performance.

This methodology has also been used to explore another transnational site, this time engaging with sensory memories of sugar in Greenock, as part of the British Academy/Leverhulme Trust-funded project 'Visualizing Sugaropolis: Interdisciplinary Recreations of Greenock's Transnational Past'. The project team have used taste and smell to prompt remembrance and 'reconnect disparate places that were once linked through people's olfactory or gustatory experiences of them'.<sup>39</sup> In a similar fashion to Dundee, Greenock's connection to the world was through its network of trade revolving around sugar refining. And like jute in Dundee, sugar changed the physical and socio-political landscape of Greenock. Its traces remain in the embodied and sensory memory of the people who lived there. To tap into these memories, we used traditional sugary products: tablet, Tate & Lyle Golden Syrup, macarons, shortbread and sugarally water as olfactory and gustative prompts in taste interviews.<sup>40</sup> These taste interviews, alongside archival research and sensory walks, have been used to inform the design of a smell game, *Smelling Greenock*, which explores the materiality of sugar, particularly its smell, to remember and re-create a lost history through gameplay. We argue that combining game design with sensory experience design can help us capture, preserve and promote the lived experience of transnational memory.

Storywalking invites critical engagement with a specific site and its remembered and lived past by enlivening the archive and transforming oral histories, lived experience and collective memory into gameplay. The direct use of emotionally-charged sites and living memory gestures towards its potential applications within cultural heritage contexts to explore individual places and their transnational stories.

## Notes

1. *Generation ZX(X)* was developed as part of the author's doctoral research. The title aimed to draw attention to the hidden figures of the video games industry, the women who built the computers that led to Dundee's development as one of UK's leading games development and education centres. The (X) chromosome is foregrounded and added to the ZX Generation thus challenging official histories.
2. See: William Walker, *Juteopolis: Dundee and its Textile Workers, 1885*, Edinburgh: Scottish Academic Press, 1979; Emma M. Wainwright, 'Constructing Gendered

- Workplace “Types”: The weaver–millworker distinction in Dundee’s Jute Industry, c.1880–1910’, *Gender, Place & Culture*, 14: 4 (2007), 467–82; and Jim Tomlinson, *Dundee and the Empire: ‘Juteopolis’ 1850–1939*, Edinburgh: Edinburgh University Press, 2014.
3. See: Jim Tomlinson and Christopher Whatley (eds), *Jute No More. Transforming Dundee*, Dundee: Dundee University Press, 2011, pp. 107–31.
  4. Emma M. Wainwright, ‘Constructing Gendered Workplace “Types”’, 467–82.
  5. Sarah Browne and Jim Tomlinson, ‘A Women’s Town? Dundee Women on the Public Stage’, in *Jute No More. Transforming Dundee*, pp. 107–31.
  6. This reputation was solidified in 2019 when Abertay University, in partnership with University of Dundee and University of St Andrews, secured a £9 million grant to establish InGAME (Innovation for Games and Media Enterprise), a creative research and development centre which capitalises on the experience and expertise held in the Dundee Games Cluster. This established Dundee as one of the nine AHRC (Arts and Humanities Research Council) Creative Industries Clusters.
  7. See: Carlo Morelli and Jim Tomlinson, ‘Women and Work after the Second World War: A Case Study of the Jute Industry, circa 1945–1954’, *Twentieth Century British History*, 19: 1 (2008), 61–82.
  8. See, for example, Emma Wainwright’s poignant discussion on discourses of gendered labour and ‘working women’, in ‘Constructing Gendered Workplace “Types”’, pp. 467–82.
  9. Valerie Wright, ‘Juteopolis and After. Women and Work in Twentieth-Century Dundee’, in *Jute No More. Transforming Dundee*, pp. 132–62 (p.147).
  10. Bill Knox and Alan McKinlay, ‘The Union Makes us Strong? Work and Trade Unionism in Timex, 1946–83’, in *Jute No More. Transforming Dundee*, 266–87.
  11. MariaLaura Di Domenico and Peter Fleming, ‘“Time (x) Out of Joint”: Interpreting Spectral Imagery in Media Representations of the 1993 Timex Industrial Dispute in Scotland’, *Journal of Management Inquiry* 23: 1 (2013), 80–92.
  12. After the Milton occupation in 1983, operations started moving to the Camperdown factory and with them the remaining workforce. The shop stewards and convenors arrived and replaced the Camperdown union representatives. Many of the interviewees felt that this was when the Camperdown factory, which had been ‘peaceful’ became militant. More information is available via the audio files in the section entitled ‘The Strikes’: <https://www.performingplay.co.uk/audio-1>.
  13. All of the interviewees remembered fondly the camaraderie and sisterhood, boisterousness and playful irreverence and subversions of power in Timex. The audio files are available at: <https://www.performingplay.co.uk/audio-1>. Emma Wainwright has discussed the spaces of resistance, the solidarity and the tight group networks in the jute mills and factories. The same forms of resistance can be observed in Timex. The women’s bathroom can be seen as such a space of resistance.
  14. The interviews that I conducted with the games developers all testify to the impact that the Spectrum had on their career and the industry. The interviews are available at: <https://www.performingplay.co.uk/audio-projection>.
  15. Thomas Lean, ‘“Inside a Day You Will Be Talking to It Like an Old Friend”: The Making and Remaking of Sinclair Personal Computing in 1980s Britain’, in *Hacking Europe: From Computer Cultures to Demoscenes*, Gerard Alberts and Ruth Oldenziel (eds), London: Springer, 2014, pp. 49–71.
  16. This is often mentioned by local developers, see for example the Chris van der Kuyl, Paul Farley and Mike Dailly interviews: <https://www.performingplay.co.uk/audio-projection>.
  17. Dave Jones used the redundancy money from Timex to buy an Amiga 1000 and start writing games. He is the founder of DMA Design which marks the beginning of game development in Dundee. DMA Design are best known for the groundbreaking

- game *Lemmings*. They would later turn into Rockstar North the company behind the famed Grand Theft Auto series. For more information see: <https://dmadesign.net/about>.
18. The 2020 Census of the UK Games Industry conducted by UKIE found that ‘70% of people working in the games industry are male, compared to 28% female and 2% non-binary workers. Female representation in the workforce is significantly under the national average of those in work, as well as less than in cultural and creative roles more generally’. See: [https://ukie.org.uk/sites/default/files/cms/docs/UK\\_Games\\_Industry\\_Census\\_2020\\_FINAL\\_DIGITAL\\_0.pdf](https://ukie.org.uk/sites/default/files/cms/docs/UK_Games_Industry_Census_2020_FINAL_DIGITAL_0.pdf).
  19. Nina B. Huntemann, ‘Women in Video Games: The Case of Hardware Production and Promotion’, in *Gaming Globally: Production, Play, and Place*, Nina B. Huntemann and Ben Aslinger (eds), New York: Palgrave Macmillan, 2013, 41–57.
  20. The event description on the booking site Eventbrite: <https://www.eventbrite.co.uk/e/generation-zxx-tickets-43095007327#>.
  21. The projection consisted of archival footage and photographs from the Spectrum assembly lines accompanied by seven audio interviews that I had conducted with game developers. In the interviews, the developers Mike Dailly, Paul Farley, Douglas Hare, Chris van der Kuyl, Andrew and Philip Oliver, Danny Parker and Erin Stevenson, focused on the impact of the ZX Spectrum on their individual careers and on the games industry at large. The developers acknowledged the impact of female labour on the industry and expressed their gratitude to the women of Timex. The event concluded with Sheena Wellington’s song *Women o Dundee* (1990), performed by three community choirs (comprised entirely of women) lead by Alice Marra. The women singing were holding picket-signs made by intergenerational groups during two positive sign-making community workshops.
  22. All the audio files can be accessed on the companion website: <https://www.performingplay.co.uk/audio-1>.
  23. On convivial walking see: Jo Lee and Tim Ingold, ‘Fieldwork on Foot: Perceiving, Routing, Socializing’, in *Locating the Field. Space, Place and Context in Anthropology*, Simon Coleman and Peter Collins (eds), Oxford: Berg, 2006, 67–86; Deirdre Heddon, ‘Turning 40: 40 Turns: Walking and Friendship’, *Performance Research* 17: 2 (2002), 67–75; Deirdre Heddon and Cathy Turner, ‘Walking Women: Shifting the Tales and Scales of Mobility’, *Contemporary Theatre Review*, 22: 2 (2012), 224–36; Misha Myers, “‘Walk with me, talk with me’”: The Art of Conversive Wayfinding’, *Visual Studies*, 25: 1 (2010), 59–68.
  24. ‘You will not find the truth in this park tonight. What you will find, are individual truths as they are remembered now, almost three decades later. Time does that though, it chews holes into our memories which is why you will not find a coherent story, but disparate memories, that you will piece together yourself and fill in the gaps as you walk in between them.’ (Mona, Entry Log 1 on companion website.)
  25. Alistair Thomson, ‘Unreliable Memories? The Use and Abuse of Oral History’, in *Historical Controversies and Historians*, William Lamond (ed.), London: Routledge, 2012, 23–34.
  26. Tim Ingold, *Lines: A Brief History*, London: Routledge, 2016, p. 17.
  27. For videos of gameplay please consult the companion website at: <https://www.performingplay.co.uk/games>.
  28. Lynn H. C. Love and Mona Bozdog, ‘A three person poncho and a set of maracas: designing Ola De La Vida, a co-located social play computer game,’ in *DiGRA 2018 conference proceedings*, Turin, Italy, 2018. Available at: <http://www.digra.org/digital-library/publications/a-three-person-poncho-and-a-set-of-maracas-designing-ola-de-la-vida-a-co-located-social-play-computer-game> (last accessed 30 July 2020).
  29. For videos of gameplay please consult the companion website at: <https://www.performingplay.co.uk/games>.

30. Robin J. S. Sloan, 'Nostalgia Videogames as Playable Game Criticism', *GAME*, 5, 2016, available at: <https://www.gamejournal.it/sloan-nostalgia-videogames> (last accessed 30 July 2020).
31. Robin J. S. Sloan, 'Videogames as Remediated Memories: Commodified Nostalgia and Hyperreality in Far Cry 3: Blood Dragon and Gone Home', *Games and Culture*, 10: 6 (2014), 525–50 (p. 527).
32. Nina Huntemann, 'Women in Video Games', 41–57.
33. For videos of gameplay please consult the companion website at: <https://www.performingplay.co.uk/games>.
34. Mike Pearson, *Site-Specific Performance*, Basingstoke: Palgrave Macmillan, 2010, p. 36. See also Fiona Wilkie, 'Mapping the Terrain: a Survey of Site-Specific Performance in Britain', *New Theatre Quarterly*, 18: 2 (2003), 140–60.
35. On 'memory sites' (*lieux de mémoire*) see: Pierre Nora's three-volume work *Realms of Memory*, translated by Arthur Goldhammer, New York: Columbia University Press, 1996; 1997; 1998.
36. Jenny Wüstenberg, 'Locating Transnational Memory', *International Journal of Politics, Culture, and Society*, 32: 4 (2019), 371–82 (p. 373).
37. Susannah Radstone, 'What Place is This? Transcultural Memory and the Locations of Memory Studies', *Parallax*, 17: 4 (2011), 109–23.
38. Henry Jenkins, 'Transmedia Storytelling 101', Confessions of an Aca-Fan, 2007, see: [http://henryjenkins.org/blog/2007/03/transmedia\\_storytelling\\_101.html](http://henryjenkins.org/blog/2007/03/transmedia_storytelling_101.html).
39. Emma Bond and Mona Bozdog, 'The Smells and Tastes of Memory: Accessing Transnational Pasts through Material Culture', in *Mobility and Material Culture*, Chiara Giuliani and Kate Hodgson (eds), London: Routledge, 2022 (forthcoming).
40. Sugarally water is a traditional drink on the West Coast of Scotland obtained by combining liquorice sticks, water and sugar in a glass bottle and leaving it until it dissolves in a kitchen cupboard or under the bed.

## Further resources

- Brocklehurst, Steven and Graeme Ogston, 'The city with grand designs. Dundee's journey from industrial strife to recovery', *BBC News*, 2018, available at: [https://www.bbc.co.uk/news/resources/idt-sh/dundee\\_the\\_city\\_with\\_grand\\_designs](https://www.bbc.co.uk/news/resources/idt-sh/dundee_the_city_with_grand_designs) (last accessed 11 April 2022).
- Generation ZX(X)* documentation, available at: <https://www.performingplay.co.uk/generation-zx-x> (last accessed 11 April 2022).
- 'The Rise and Fall of Timex Dundee', *BBC Scotland*, 2019, available at: <https://www.bbc.co.uk/programmes/articles/2cxc93VHq2MzTKZc9WLnqv/did-these-fearless-factory-women-pave-the-way-for-minecraft-and-grand-theft-auto> (last accessed 11 April 2022).