

Institution: University of Bristol
Unit of Assessment: 35 (Music, Drama, Dance and Performing Arts)
Title of case study: Lighting a reconstruction of a Jacobean indoor theatre: the new Sam Wanamaker Playhouse at Shakespeare's Globe in London
<p>1. Summary of the impact</p> <p>The unique and most defining feature of the indoor Jacobean playhouses was that they gave their performances by candlelight. The impact of Martin White's research into early modern theatre practices, and into lighting in particular, is that the modern reconstruction that sits alongside the Globe playhouse in London – the Sam Wanamaker Playhouse (SWP) -- will, equally uniquely, also give its performances under candlelight. As a result, the theatre and the plays presented in it will complement each other, and for the first time in 450 years audiences will experience as closely as possible the impact of early modern plays performed in the environment for which they were written.</p>
<p>2. Underpinning research</p> <p>The research programme was the first systematic investigation of the lighting of the early modern English indoor playhouse ever to have been undertaken. Although candle light was an integral and central aspect of early modern performances – influencing how plays were written, acted and received – there has been surprisingly little written about it and prior to this project, <i>no</i> practical/performance-led investigation whatsoever.</p> <p>The research has been carried out in four incremental phases, the fourth of which ran concurrently and was closely intertwined with the Globe's development of the SWP. The first phase, commencing in the early 1990s, comprised a programme of productions of early modern plays written specifically for indoor performance. The second phase (1995-8) involved staging selected plays in the Wickham Theatre at the Department of Drama at the University of Bristol on a skeleton reconstruction of an indoor playhouse. This research was further developed in 1997 using a more extended reconstruction thanks to a University award to Professor White for Excellence in Teaching and Learning. (Findings from this phase were published in White's monograph, <i>Renaissance Drama in Action</i>, Routledge, 1998.) The third phase (2006-7) was a research project [1] using a full-scale, fully decorated reconstructed stage and auditorium based on seventeenth century drawings held in the library of Worcester College, Oxford (the drawings currently providing the basis of the SWP), and culminating in the publication of an interactive DVD [2] with an associated website [3]. From the start, this phase was conceived of as a collaboration between academic research and the theatre industry. Core funding was provided by a major award from the AHRC [1], with additional significant support in kind from Shakespeare's Globe (costume and weaponry), the Royal Shakespeare Company (properties), and with Jenny Tiramani and Dr Farah Karim-Cooper [f] from the Globe, world authorities respectively on early modern dress and make-up, as part of the research team. The texts were performed by professional actors with experience of early modern plays at either the RSC or Globe, directed by Martin White. The research sought not only to understand the operation and effect of candlelight in all its modes but also, on the DVD, <i>to demonstrate for the first time</i> its impact on performance, using five exemplary plays specifically designed by their authors for indoor performance, with selected extracts chosen to explore the flexibility of the general stage lighting (chandeliers and wall brackets or sconces), hand-held candles, lanterns and torches.</p> <p>The discoveries were revelatory, proving that the candles provided a satisfactory level of illumination (while underlining the benefits of the seats closest to the stage) and that it was possible to create lighting changes by extinguishing candles near the stage and altering the height of the chandeliers above the stage. The research also clarified contemporary ideas of the effect of candle light on the colour of costumes and decoration, and revealed the different relationship between seeing and hearing from that experienced in modern theatres or, indeed, the open-air Globe reconstruction. Particularly striking was the discovery (later corroborated by White's research contacts at Cesky Krumlov; see below) that the candles, even those made of tallow, did not smoke or smell when lit anywhere near as much as is often claimed in theatre history books.</p> <p>A pressing question was how to document and disseminate these major findings. Fortunately, this coincided with the emergence of High-Definition video recording capability that allowed the work to be filmed in the low light levels provided by the candles. This was undertaken by a</p>

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commercial film production company, Ignition Films, [i] and shot on four linked HD cameras under the control of Director of Photography Terry Flaxton. The DVD also introduced the capacity for the viewer to select viewing positions in the auditorium with no interruption of sound or the flow of action, both significant innovations in the documentation of performance. The fourth phase (2009-2013) followed the decision by the Globe Trustees to complete the indoor playhouse and was divided into two main areas. The first, focusing on documentary sources and the experience of White's practical research, was to confirm that the Worcester College drawings would remain the template for the reconstruction; the second was for White to focus on further investigation into material choices, such as between beeswax, tallow and modern alternatives, the nature of the wicks (more important than had previously been realised), and undertake a detailed numerical analysis of contemporary records to determine the number of candles that were used to illuminate the indoor theatres, challenging previously held assumptions [5, 6]. In these matters, and throughout the whole period, White has worked closely and collaboratively with all those closely involved in the project as the candle lighting affects virtually all decisions. [a, b, c, d, e]

3. References to the research

[1]. AHRC research grant awarded to Martin White (ref (18461/1): 'Working with Inigo Jones: early modern theatre in a digital age'*. 2006-7. Value: £77,200. Final AHRC assessment of outcome: "outstanding". Subsequently received Dissemination Award, value £10,000.

* This is the original title of the application and award. However, during the research process the attribution to Inigo Jones was challenged by the architecture historian Dr Gordon Higgott (who argues his case on the DVD [2]). The drawings are now believed to be by Jones' pupil, John Webb. See Section 4 below and Martin White, "A merciful gift": the Worcester College Drawings, 7B and 7C'. Presentation at the Globe, 25 September, 2010 reviewing the significance of these documents for the reconstructed playhouse. (Available on request.)

[2]. Martin White, *The Chamber of Demonstrations: Reconstructing the Jacobean Indoor Playhouse*, interactive DVD, published by Ignition Films for the University of Bristol. This is the prime published outcome of [1]. (Submitted to RAE 2008; revised version published 2009; DVD available on request.)

[3] Martin White, www.chamberofdemonstrations.com. This website carries a range of material to keep the DVD up-to-date, as well as White's public lectures, conference contributions, etc., referred to in this document.

[4]. Martin White, 'Research and the Globe', in C. Carson and F. Karim-Cooper (eds) *Shakespeare's Globe: A Theatrical Experiment*, Cambridge: CUP, 2008, pp. 166-74. (Available on request.)

[5]. Martin White, "A darkness comes over the place": artificial lighting in the early modern playhouse'. Paper delivered at the Jacobean Indoor Playing Symposium, King's College, London, 4 February 2012, in which White first advanced publicly his significant new analysis of the numbers of candles used in indoor playhouses. (Available on request.)

[6]. Martin White "When darkness made an artificial noon": lighting the early modern stage, then and now', Public lecture, Victoria and Albert Museum, 14 July 2013, as part of the AHRC-funded Shakespearean London Theatres research project. (Available on request and at <http://shalt.org.uk/downloads>.) The lecture includes research discoveries made since the construction on the SWP commenced, material dealt with in more detail in an 8000-word chapter with the same title in the book, *Moving Shakespeare Indoors*, eds. A. Gurr and F. Karim Cooper (CUP), forthcoming January 2014.

4. Details of the impact

1. **Impact on the Sam Wanamaker Playhouse.** The reconstruction of the open-air Globe playhouse was opened in 1997, and from its inception the plan was to create an indoor playhouse to stand alongside it, replicating the original Globe-Blackfriars venues owned by Shakespeare's company, the King's Men. Although the shell of the indoor playhouse was built, funding did not allow completion of its interior at that time. However, in 2009 the Globe Trustees decided to complete the indoor project and began to raise the necessary funding. Research at the Globe is led by the Architecture Research Group (ARG), which is made up of theatre professionals, theatre historians, experts in décor and architects. White has been a member of this group for over a decade, was its chair for some years, and in the past four years has been in constant dialogue with the Globe about the issues surrounding the lighting of the indoor playhouse.

The question of the evidence on which to base the design was a crucial first step. When the

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shell was built in 1997 it seemed certain that the Worcester College drawings were by Inigo Jones, could be dated around 1617-18 and identified with the Cockpit playhouse built in that year in Drury Lane. During the following decade, however, the auspices, date and identification were challenged, and the drawings were believed by some scholars to be by John Webb (Jones' pupil, whose papers are also held at Worcester College) and potentially dated later in the century. The basis for these arguments are explored on the DVD [2], in a discussion between Martin White and the leading drawings expert, Dr Gordon Higgott, filmed in the Worcester College library. Consequently, White was a key participant in the decision that resulted in a recommendation by the ARG to the Globe's Trustees that they continue to use the drawings as the basic model for the reconstruction, given that they remain the only extant drawings of the interior of a Jacobean playhouse, match every known feature of those playhouses and, importantly, had been tested in practice by White's research project and by his productions on reconstructed stages over a number of years. The Trustees accepted the ARG recommendation. [a, b].

Attention now turned to the key issue of how to light the SWP. A core aspect of the Globe's policy is to explore 'original practices', but each theatrical decision has to be underpinned by viable research [4], and White's work has been fundamental in providing such evidence. It had been generally assumed that it would be necessary to perform using electric candles (as is the case at the reconstructed Blackfriars indoor playhouse in Staunton, Virginia, USA) as opposed to real candle-light, on the grounds that it was very unlikely that permission would be granted to perform *publicly* using candles to light the theatre. It became central to White's work to overcome this assumption. On 21 June 2011, a group of 30 from the Globe, including the CEO and Artistic Director, architects, advisors, actors, designers, etc., travelled to Bristol to work with White and the Drama Department's reconstruction that was put up in the Wickham Theatre for the occasion. Three scenes were performed using three different kinds of lighting (candles, artificial candles and conventional stage-lighting) followed by detailed analysis of the results which confirmed the preference for real candles, and the Artistic Director asked White to return to the question of the number of candles used and the resulting light levels. [b] As a result of the workshop, the Globe moved the Bristol reconstruction to London with the intention of erecting it in the shell of the new building to provide a template against which to test decision-making.

Clearly, live flame has a number of safety implications, and one of the major ways in which White has been able to make an impact is to emphasise the importance and the unique experience that candlelight represents, and to explain this view to the London Fire Service and the Globe's insurers. [b,d,e] 'There has been considerable work undertaken on this subject by Professor Martin White at the University of Bristol. This includes the number and location of candles, the type of wax used in 16th century candle-making and how the candles were operated by the stage assistants and the actors on stage' (Fire Strategy Report, July 2012, p. 69). [e] It is reasonable to claim that these presentations overcame initially held doubts and helped clear the way for the playhouse to operate as imagined. [b, d, e] Subsequently, White's work and knowledge has been constantly drawn on as the fine detail of the lighting (equipment and operation) has been finalised. [a, b, e] With no precedents to turn to, White has advised on the positioning of the chandeliers above the stage and, most crucially, the height at which they should be hung (which challenges previously held assumptions); the composition, size and number of candles (which White's research has completely rethought) and the crucial but often over-looked choice of wicks; the range and nature of hand-held lighting instruments; and related issues such as the effect of the paint scheme on the candlelight and vice versa, a key decision where only practical investigation can verify ideas drawn from contemporary references. [c, e]

In November 2011 White was invited to visit the Court Theatre (an opera house built in 1766 and now a World Heritage site) at Drottningholm, in Stockholm, to work with a group of international scholars and theatre practitioners on the question of lighting this unique building. In November 2012 he spent time at the Baroque Theatre Institute based in the eighteenth century theatre in Cesky Krumlov in the Czech Republic to test out ideas related to the Globe project. Both theatres are now lit by electric candles, but retain vital information about their original candle lighting in the form of documents, decoration and artefacts. In July 2013 the Globe sent White and the company's Production Manager on a further visit to Cesky Krumlov, and the combination of these visits and White's own research have further influenced specific decisions at the SWP. For example, 'candle torches' are frequently referred to in early modern documents, but it was not until White came across one at Cesky Krumlov that it has been possible to reconstruct one for the

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SWP, solving a previously puzzling problem of exactly what kind of torches could be employed indoors. Other key areas that White's research there has helped solve include the design of the chandeliers, the auditorium lighting, the paint scheme, and possible illumination of scenic elements, [a, b, c, d] while his contacts have resulted in developing an ongoing relationship between himself, the Globe and Cesky Krumlov.

There is no doubt that the prospect of working with candlelight, and its successful employment at the SWP, has been entered into with a confidence derived from White's research work. [a, b, c, d] But while the aesthetic impact of a candle lit theatre is undeniable, Shakespeare's Globe is a commercial organisation that receives no state funding whatsoever, and the fact that all available tickets for the SWP first season (opening January 2014) sold out almost immediately is clear evidence of the financial impact of the new playhouse and its distinctive lighting.

2. Impact on teaching in the UK and internationally. White has given many presentations to A-level students in schools in Bristol on the importance of understanding the nature of indoor playing (not least lighting) when studying appropriate play texts. The DVD too has been influential: 'This extraordinary and innovative DVD . . . is the closest we can come to the intensity and subtlety of the candlelit Jacobean playhouse. Ingenious multiple-angle shooting allows the viewer to experience the intimacy of the theatre from a variety of viewpoints. Martin White's gripping and enthusiastic introduction and interviews with historians, costume and makeup artists make this an invaluable resource for A level and Undergraduate students of Literature and Drama, and shows the possibilities of recreation for making theatre new.' [h]. The DVD provides an 'interactive and vividly visual view of Jacobean indoor theatres. . . . A rich diachronic dialogue between early modern and twentieth-century performance practices . . . is the sort of work that White excels in, as is . . . evident from his *Chamber of Demonstrations* . . . that allows the viewer to see the lighting conditions and staging possibilities'. [g]

3. Impact on audiences beyond academia. Although it has sold to university libraries around the world and to individual lecturers and school teachers, the DVD is also sold via non-academic outlets including Amazon, French's Bookshop, the bookshops at Shakespeare's Globe and the National Theatre as well as via chamberofdemonstrations.com. In all, some 750 copies have been sold. [i] It has also been disseminated to non-academic audiences through, for example, its inclusion in the exhibition, 'Painted Pomp' at the Holburne Museum, Bath (January-May 2013); White's presentations to a general audience at the Globe's Annual Seminar (February 2013) [f], the Society for Theatre Research's 'Annual Address' (May 2013) and the public lecture at the Victoria and Albert Museum [6] (July 2013), as part of the AHRC-funded 'Shakespearean London Theatres' project (ShaLT): a video of White's lecture and a filmed interview on indoor playing are available at <http://shalt.org.uk/downloads>; the interview is also available on YouTube.

5. Sources to corroborate the impact

[a] The Chief Executive, Shakespeare's Globe.

[b] The Artistic Director, Shakespeare's Globe.

[c] The architect responsible for the completion of the Globe outdoor playhouse and now for the SWP.

[d] The Production Manager at the Globe. He and White have worked closely on the practical aspects of the design, manufacture and operation of the lighting facility, chandeliers, wall-brackets, choice of candles, etc.

[e] The Director of The Fire Surgery (specialists in fire risk), employed by the Globe to produce the Fire Strategy, which includes the issues surrounding the use of fixed and mobile naked flame. White made a presentation on the history and practice of candle-lit performances to the London Fire Service on 6 October 2011.

[f] Head of Research at the Globe and Chair of the ARG (Address as for [a]).

[g] Pascale Aebischer, *Jacobean Drama: Readers' Guides to Essential Criticism* (Basingstoke: Palgrave MacMillan, 2010), 28-9, 150-1.

[h] The Chief Examiner in English Literature for the Oxford and Cambridge Examination Board. Review of DVD at: http://www.amazon.co.uk/Chamber-Demonstrations-Reconstructing-Jacobean-playhouse/dp/B001YAIDTA/ref=sr_1_1?ie=UTF8&qid=1323682871&sr=8-1.

[i] Ignition Films, Bristol.