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如何重建劇場：以十七世紀法國劇院為例

Christa Williford *

摘　要

認識歷史上的舞台及劇院建築，乃是了解戲劇史的重要關鍵；然而，大部分（登載於史冊上）（著名的？）的劇院，不是消失湮滅，便是歷經重建整修，早不復見原貌。於是，西方學者長久以來便試圖藉助於素描、小模型、乃至實物大小的模型，重建昔日的劇院。而不論以什麼形式，完善地整理出重建劇場的方法學，一直是此類研究的重要基礎以及背景。因此，從事以數位重建劇院的現代歷史學家面臨相同的挑戰，便不足為奇了。

在本文中，我想要探究學者們重建劇院的原因，以及他們所採用的不同方法。我將以眾所熟知的伊麗莎白公共劇院為例，說明在重建劇院時，一般會面臨到的幾個問題，並指出一些應當記取的教訓，以助成功發展重建策略。之後我將討論我是如何將這些策略應用在十七世紀巴黎劇院的部分虛擬重建上，其中包括原是室內網球場的勃根第劇院（Hôtel de Bourgogne），以及建於 1641 年的主教劇院（Richelieu’s Palais Cardinal Theatre）。透過仔細討論這些模型，我將指出有哪些不同的方法可以傳遞這些立體重建計劃的研究成果，以及如何表達從中衍生的問題。最後，我要證明虛擬重建的研究及製作，能為當今的學習環境提供有用的技巧；此外，教學時結合數位劇場模型，大有助於提昇劇場重建研究的品質。

關鍵詞：劇場史、劇場重建、十七世紀法國劇場、主教劇院、數位重建

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*美國布林茅爾學院 CLIR 研究員。

The Historiography of Reconstruction and the Seventeenth Century French Theatre

Christa Williford *

Abstract

An understanding of historical stages and theatre architecture is obviously critical to an understanding of theatre history, but most historical theatres have vanished or else have been renovated beyond recognition. Consequently, scholars in the West have long sought to reconstruct theatres from the past through drawings, small models, or even life-size models. Formulating successful methodologies for re-building theatres, in whatever form, has always been an important part of the basis and context of such studies, so it is hardly surprising that similar challenges face today's historians engaged in building digital reconstructions.

In this essay, I would like to explore some of the reasons for which scholars have created theatre reconstructions, and the different ways in which these were made. Using the more commonly known example of the Elizabethan public theatre, I will illustrate a few of the problems faced in theatre reconstruction generally and then identify some lessons to be learned from these for developing successful reconstructive strategies. I will then discuss how I have applied these strategies in partial virtual reconstructions of seventeenth-century Parisian spaces, including the Hôtel de Bourgogne, an indoor tennis court, and most particularly Richelieu's Palais Cardinal theatre from 1641. Through discussing these models in some detail, I will identify various methods for disseminating the findings of 3D reconstruction projects, and suggest ways for expressing the questions they raise. Finally I will argue that the study and creation of virtual reconstructions can teach valuable skills in contemporary learning environments, and that the incorporation of digital theatre models into teaching can only strengthen the quality of reconstructions as research.

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* CLIR Research Fellow, Bryn Mawr College, USA.

Keywords: historiography, theatre reconstruction, 17th-Century French theatre, Richelieu's Palais Cardinal Theatre, digital reconstruction

The Historiography of Reconstruction and the Seventeenth Century French Theatre

Christa Williford

1. The Place of Space in Theatre History

Questions about space lie at the very heart of the study and practice of theatre. Consequently, full discussions of any theatrical performance require a graphical language as well as a verbal one. Theatre professionals, particularly designers, understand this need well. Good practical theatre training programs stress the importance of learning to communicate both by visual and verbal means, since the failure to rely upon the two methods together is one of the most common predictors of misunderstandings and even artistic disasters.

The same benefits which images and models have long afforded theatre artists have also been available to theatre historians, even though their advantages did not always seem so clear. Many earlier scholars were reluctant to devote their time to exploring the visual aspects of performance. Their hesitation might be explained in several ways, from the frequent lack of sufficient evidence to the elevation of the dramatic text above other theatrical artefacts. Indeed, the kinship of theatre studies with the longer tradition of literary scholarship has shaped interests and working methods throughout the history of the profession; it is not surprising that many have disproportionately emphasised the verbal over the visual, feeling more comfortable discussing character, verse, and theory rather than speculating about an acting style, design choice, or the arrangement of an auditorium.

Furthermore, scholars are often wary of attempts to recreate visually the theatre of the past. We know that once a theatrical performance is finished, even if we have

just seen it, we can never describe it exactly as it happened. Even more, once a long ago acting tradition has passed away or a building has been destroyed or renovated, it is only the evidence that has survived by chance that can give us any clue to what has been lost.

In a sense, all history is reconstruction; those who seek perfect reconstructions, seek the impossible. But with visual reconstructions this same condition becomes even more awkward. As the artist-historian C. Walter Hodges describes it,

> The picture in the mind is one thing: the reader creates his own, and it will not matter very much if it should be a little blurred in places. But the picture printed on the page is quite another. Here there can be no blurring. Statements must be made for better or worse, true or false. For this reason scholars have been suspicious of reconstructive drawings or models, and rightly, since the only certainty about any one of them is that somewhere it is wrong.[1]

While the scholarly reconstruction of past theatre buildings and performances has never been without its problems, it has also never been completely ignored. A number of scholars have seen the importance of exploring the history of the theatre in three dimensions. Historians working in this tradition have borrowed some of the best techniques of designers, architects, and archaeologists to produce conjectural drawings and models of historic theatre spaces. These works have proven extraordinarily useful for both publication and teaching. However, many compelling visual recreations of past theatres are unaccompanied by sufficient verbal explanations of why they were chosen or how they were constructed. If indeed the English proverb about a picture being worth a thousand words is true, then the renderings or photographs may well "speak for themselves," but one often needs more than a thousand words to understand a complex architectural structure.

The balance between the visual and the verbal has always remained difficult to achieve for scholarly reconstructions, since such studies require intensive historical analysis of varied types of evidence as well as the graphical skills with which to communicate architectural ideas. Many theatre historians are understandably

1 Hodges, C. Walter. *The Globe Restored* (London: Oxford UP, 1968), pp. 83-84

reluctant to engage in this kind of work without some special training. It is not surprising that historians with additional qualifications have produced the most important and enduring work: artist-historians, like Hodges, or those with architectural or technological experience, like Richard Leacroft or George Izenour. Major studies in this area also tend to be collaborations. One of the best examples of collaborative history has been the reconstruction of Shakespeare's Globe on London's South Bank. A historiography of Globe studies highlights some common problems with reconstructive methodologies.

2. Reconstructions of the Globe

In one manner or another scholars have been trying to recreate Shakespeare's Globe for over two hundred years. Globe enthusiasts have not only produced drawings and models: the all-consuming goal has usually been to rebuild the theatre full-size. An obsession for the Globe has absorbed not only historians but also architects and theatre practitioners. The study of the theatre has not only influenced the modern understanding of Renaissance English drama and performance, it was also a key force in twentieth-century theatre construction. A brief look at some of the many different approaches to the Globe is a good way to explore the promises and pitfalls of reconstruction in theatre history.

One of the more interesting questions about the Globe "quest" is how people have persisted in thinking this theatre's reconstruction possible in spite of a serious lack of available evidence. The original Globe was destroyed by fire during Shakespeare's lifetime, and its successor, the second Globe, was dismantled during the English Civil War. For over two hundred years after its destruction, the available material pertaining to the original Globe's architecture included only the remaining texts of plays produced there and a somewhat ambiguous builder's contract for a major rival theatre, the Fortune. The sum total of this evidence hardly allows a detailed recreation.

But Romantic "bardolatry" would hardly permit scholars to content themselves without one. By the mid-1830s the Germans Ludwig Tieck and Gottfried Semper decided that if rebuilding the Globe was not possible, they would at least try to

reconstruct the Fortune theatre from the details of its contract. Later in the century, the breakthrough discovery of a late sixteenth-century drawing of London's Swan theatre inspired the English director William Poel to erect a portable Elizabethan-style stage for his Shakespearean productions. These earliest models are less interesting for what they reveal about the Elizabethan stage than for what they tell us about their creators' assumptions. Tieck and Semper found it so difficult to imagine a stage surrounded by audience on three sides that they widened the Fortune stage by adding wing space. Poel assumed that Elizabethan actors would have used the large onstage support posts from the Swan drawing for hanging curtains to hide scene changes. The nineteenth-century proscenium stage was clearly a powerful influence on these men's minds.

Although Poel's stage was flawed as a reconstruction, the simplicity of his productions caught the attention of many theatre artists and inspired even greater interest in the bare Elizabethan stage and replicas of its theatres. There were many early twentieth-century experiments including full-size reconstructions, but these were not so much serious scholarship as they were attempts to capture some of the style and spirit of the Elizabethan theatre. But soon the work of British civil servant E. K. Chambers, who meticulously collected and analyzed primary evidence pertaining to the Elizabethan theatre, made a more academic reconstruction seem possible.

In the 1940s, working with much of the material uncovered by Chambers, the American John Cranford Adams envisioned a logical and highly imaginative theatre with a Poel-like tapered stage and curtained "discovery spaces" on three levels of an elaborate tiring house façade. After the war, with the help of the artist and scholar Irwin Smith, he published numerous detailed architectural drawings. Adams' work, which has been frequently reproduced, was the most thorough analysis of both pictorial and textual evidence pertaining to the Elizabethan stage to date. His model was the basis for a new full-sized reconstruction built at the Folger Shakespeare Library in Washington, D. C.[2]

Just two years after the publication of *The Globe Playhouse*, I. A. Shapiro

2 See http://www.folger.edu/intro/architecture.asp.

exposed Adams' Globe design as severely flawed. Adams had cast such a wide net for his evidence that he seemed to have made the rather ridiculous assumption that all Elizabethan theatres were basically alike. Despite the errors Adams made, his writing marked the beginnings of serious debate about the Globe. In the end, his very attractive model long outlived his scholarship, continuing to appear in subsequent publications about the Globe long after the major premises behind it had been disproved.

Back in the United Kingdom, the historian and stage designer Richard Southern took up the subject of the "typical" Elizabethan playhouse in an article for *Shakespeare Survey* in 1959, proposing a sixteen-sided polygonal structure with a Swan-like rectangular stage. He illustrated his design choices with plans, elevations, and photographs of a skilfully constructed three-dimensional model. Southern's work seemed to be an improvement over Adams's, and it had a major influence on the scholarship of C. Walter Hodges, who later published a book-length study dedicated to the design of the Globe. Drawing upon other recently completed works by scholars,[3] Hodges avoided trap of trying to recreate the definitive Elizabethan theatre by liberally applying the term "conjectural" to his multiple sketches of different Elizabethan playhouses as well as the Globe itself. His drawings remain both reasonable and evocative.

The story of the Globe next shifts to the actor Sam Wanamaker, who had immigrated to Britain from the United States during the McCarthy era. He had long been fascinated with Shakespeare and the Globe, but by the late 1960s he had become committed to the idea of building a new theatre dedicated to Shakespeare's drama close to the Globe's original location. After several years of false starts, he began gaining the support of academics for his project, and these men advised him to strive for the most authentic reconstruction possible. Through the 1970s and 1980s, the top theatre scholars in the field, joined by architects and architectural historians, debated and planned for the new Globe. As might be expected, disagreements about evidence and about the purpose of the reconstruction were numerous. Meanwhile, financial and legal troubles plagued the project, causing delay after delay.

3 Among these were Leslie Hotson, A. M. Nagler, Bernard Beckerman, and Glynne Wickham.

At the same time, the long campaign for a new London Globe generated advancements in scholarship. Key among these was the work of John Orrell, who explained the methods by which the various panoramic views of London were created in *The Quest for the Globe* (1983). These engravings, particularly one by Wenceslas Hollar from 1644, remained the primary pieces of evidence for the Globe's size, shape, and exterior decoration. Orrell revealed that Hollar's engraving had been created using a perspective glass, a method that produced a remarkably accurate rendering of London's architecture. Calculations based upon Hollar's view led Orrell to propose that the outside diameter of the Globe had been almost exactly 100 feet. The scientific rigor of his argument was unprecedented and therefore very difficult to dispute. By expanding the scope of his research beyond material that was strictly theatrical, Orrell set an important precedent that helped inspire others to look in new directions for answers to the Globe's myriad questions.

By 1989, the group had almost finalized their plans for a twenty-four-sided new Globe, and construction of the foundations had begun. Just yards away, archeologists from the Museum of London had begun work on the site of the demolished Southwark Bridge House, located where the Rose theatre, one of the Globe's rivals, once stood. Few expected that any of the Rose remains had survived, but indeed they had. New construction on the site halted while the archaeologists busily worked to uncover, record, and then protect the remains before they were enclosed within the basement of a new office parking garage. After this remarkable discovery came the even more remarkable unearthing of a small portion of the remains of the original Globe itself. In need of further funding anyway, Wanamaker decided to postpone work on the new Globe until the recent findings could be properly analyzed and, if possible, incorporated into the design.

The remains of the Rose revealed a small irregular fourteen-sided auditorium with a shallow, tapered stage—an arrangement unlike anything scholars had previously predicted. No one but Tieck had favored such a shallow stage, and no one since Adams had seriously proposed a tapered stage. But the Rose, of course, was likely to have been completely different from the Globe, so it inspired few changes in the shape of the new theatre. The sketchy Globe remains suggested not a sixteen- or twenty-four sided polygonal "O" but a twenty-sided shape that no one

could ever have guessed. Unfortunately there were not enough remains to reveal conclusively the overall width of the auditorium. Orrell made the case that a 100-foot diameter was still feasible; after considerable discussion, Orrell's theory was accepted and construction resumed. The finished Globe opened to the public in 1996 and stands today, both a scholarly model and a regularly operating summer theatre alongside a museum dedicated to the Elizabethan stage.

Over a century since the idea was first proposed, London has its new Globe. After scores of drawings and models of various shapes and sizes, could scholars and architects have finally found the definitive answer to the Globe's many mysteries? This can hardly be the case. To repeat what Hodges has wisely said about models, "the only certainty about any one of them is that somewhere it is wrong." One can only expect that years from now the current London Globe will betray to our descendents all the shortsightedness and theatrical prejudices of the late twentieth century. This is not to say that the enterprise of rebuilding Elizabethan theatres has been silly or worthless: during the last two centuries, Globe reconstructions have spawned a number of excellent careers, a small library of books, many new theatres, and an immeasurable amount of world-wide enthusiasm for the works of Shakespeare.

So what lessons can the history of Globe studies teach us about reconstructing other lost theatres? First of all, it is important to remember that reconstructions are always in some respects products of their own time. Just as Tieck and Poel could only see the Elizabethan stage through glasses colored by their nineteenth-century perceptions, twenty-first century scholars can hardly expect their own views of the past to be unbiased. The context in which a model is created, then, is just as important (if not more important) than the model itself.

Secondly, any reconstruction is only as valuable as the evidence upon which it is based. For most of the nineteenth century, the major piece of primary evidence for the construction of the Globe was the Fortune contract. While this document has always been extremely useful, the subsequent additions of other evidence, such as the Swan drawing, the various engravings of London, or the recent archaeological findings, have helped improve the validity of Globe models. Collecting all the evidence for a reconstruction is, of course, of paramount importance, but equally

significant to the success of any model are the interpretative choices a scholar makes. Where pieces of evidence seem to contradict one another, historians must carefully choose to privilege some over others. Above all, it is best if a historian clearly documents the reasons for which these choices were made so that readers can judge the value of his or her reconstruction for themselves. Once again, the balance between the visual and the verbal in reconstruction remains crucial.

Next, as we saw in the case of Orrell's work, good models may require a scholar to venture outside his or her own field. Reconstructing theatre buildings, even if only on paper or in balsa wood, often demands an understanding of subjects such as architecture, building practices, artistic conventions, interior design techniques, legal regulations, or archaeology, besides a solid background in social and theatrical history. Hence, the most complete reconstructions may require that experts from different areas work collaboratively, as we saw in the case of the International Shakespeare Globe Centre in London. It is important to remember that new evidence may always come to light, such as the Rose and Globe foundations unearthed in 1989, so the process of rediscovering historic theatre spaces is never truly complete. For this reason, the best models are those which are documented well enough that they might be easily revised when new information surfaces. After all, models are by definition simplifications and idealizations of what they represent; claims of "authenticity" must always be suspect.

Finally, some form of publication is the key to preserving for others what one learns from a reconstruction. Because of the limitations of paper publication, this is one of the greatest drawbacks for those who have built traditional three-dimensional scale models. Photographs simply cannot replicate a hands-on experience with a model. Museums or libraries can help to make theatre models available to students or scholars, but, sadly, this is not always a priority. If a model is preserved within a context that helps viewers understand its relationship to the evidence upon which it has been based, its construction is certainly just as valid an academic exercise as the drafting and publication of a scholarly essay.

Ultimately, where the need to understand the architecture of a particular theatre is important enough, it hardly matters whether or not our research can produce a definitive reconstruction. C. Walter Hodges, who has in recent years inhabited the

position of a kind of philosophical grandfather to the advocates for reconstructed Globes, has explored the rather paradoxical nature of this type of work[4]: the primary goals are to be complete and to be authentic, yet in order to be complete one must damage authenticity. He stresses that scholarly reconstructions require the application of both scientific and artistic skills, a combination that inevitably leads to self-deception and the making of "mistakes." He uses the example of John Cranford Adams, whose work was part of his own inspiration for entering the field of study. Adams had at his disposal much of the evidence that more recent scholars have had for the structure of the Globe, but his own artistic sensibility led him to deceive himself into believing things about the Globe for which there was no basis whatsoever. At the same time, the inherent beauty and logic of his model, with its tapered stage and three levels of curtained discovery spaces, is still a wonder to behold. Adams's model is even more of a wonder now that the Rose foundations have revealed a stage very similar to his own. Scholars attempting reconstructions often may "get things right for the wrong reasons, and wrong for the right ones." Hodges advocates a tolerant attitude toward their so-called "mistakes," since at the very least today's "mistakes" might someday prove more interesting than the things we got right. As in the case of the elusive Globe, regardless of whether we believe a definitive reconstruction to be possible, we will continue to attempt reconstructions wherever compelling reasons exist for wanting to know.

3. Computer Reconstruction

When it comes to objects and places, questions of historical reality can be deceptively simple. Something either once existed, or it did not. The seventeenth-century Parisian theatres I study all once existed; of that we can be confident. Even though we cannot actually see them today, enough people wrote about or drew them while they did exist to tell us something about what the theatres were once like. But the filtering of the theatres' physical characteristics through different individuals'

4 See Hodges, "What is Possible: The Art and Science of Mistakes." In Hildy, Franklin J, ed., *New Issues in the Reconstruction of Shakespeare's Theatre* (New York: Peter Lang, 1990), pp. 39-53.

perceptions that naturally occurs at the time people make their recordings, even while they are our lifelines to the past, can cause problems. People tend to record only the facets of their reality that are important to them, or, more accurately in many cases, the imagined realities of the powerful people who pay them. Their priorities for accuracy do not usually match our own. So just like any other historian, the historian of theatre architecture has a messy job assembling interpretations of interpretations in an attempt to uncover historical "truth."

In the same way, computer modeling can also be a deceptively straightforward process. An object in a model is there, or it is not. It is one shape and size or another. It is one color, one texture, or another. Obviously our tentative understanding of historical reality, limited by the filtering process of recorded history, causes problems when we try to use computer modeling as a tool to understand the past. Whereas in our imaginations we can leave facts about which we are uncertain hovering in a kind of mental fog while we skip over to the parts of history that we know, the computer does not really allow us do that. Arguably the best "tool" for reconstructing history remains the imagination. Nevertheless, even though it can never come close to reality, a computer model (just like a drawing or an article is in its own way) still remains a good tool for sharing the contents of one person's historical imagination, and thereby for building a collective imagination.

Although developed primarily for architects and engineers, CADD (Computer Aided Drafting and Design) software has created exciting possibilities for the researcher interested in reconstruction. Today there are a great variety of CADD and related software packages available at a wide range of price levels. I use one of today's industry standard surface-modelling packages, *3D Studio Max* [Figure 1][5]. *3D Studio Max*'s graphical user interface (GUI) makes modelling somewhat intuitive for the habitual computer operator, yet its powerful image rendering and animation tools make it equally viable for the advanced professional. Still other packages allow the creation of interactive models, which users might explore in any way they wish. Other hardware and software advancements in virtual reality, fuelled by the demands of the military and computer games industries as well as engineering, make

5 See also http://www4.discreet.com/3dsmax/.

the future possibilities for building and exploring computer models seem almost endless.

Since CADD has long been beneficial to architects and stage designers, it is hardly surprising that theatre historians have been seeking to exploit the same technology in the service of their work. In some important ways, however, CADD programs make it easier to engage in this type of work than in the past. They can eliminate the need for any particular talent in drawing, measuring, or cutting. Digital models are also much easier to transport, to share, and to modify than physical three-dimensional models. In addition, the flexibility of being able to generate views of a model from many different perspectives and to present a model in various forms is a key advantage. At the same time, there is still something wonderfully stimulating about a hands-on experience with a three-dimensional physical model which the most widely available computer technology has not yet replaced, nor is there necessarily any need to replace it. Life-sized and living models such as the International Shakespeare Globe Centre are quite something else altogether, providing a unique opportunity to engage in the study of real live performance for so many people that digital models may not ever supply.

Despite these distinctions, the process of constructing a computer model really shares more with other forms of modelling than it does not: the necessity of a rigorous examination of available evidence, the problem of dealing with apparent contradictions in this evidence, and the need to make decisions about architectural and design features for which there is no direct evidence. There is a tension between making a model as accurate as possible and the desire to make it complete—the need to make it defensible and the need for it to look attractive. This tension is always part of the building process, and one is wise to take it into account when viewing any model, digital or otherwise. Most importantly, the meticulous study of a physical space during the creation of a model provides opportunities for discovery. As the Globe studies have shown, despite whether one ever achieves the illusory goal of "authenticity" in recreating a historic theatre space, it is almost certain that the attempt to recreate it will lead to new discoveries and increase our knowledge about theatres of the past.

Computer technology may have changed the ways in which we can build,

access, refine, and transport models, but the principles by which high quality models may be judged remain the same as they were before the computer age. At the same time, a few problems specific to computer modelling do need elucidation. Computer modelling skills do require a significant investment of time and effort to obtain, but tools are becoming easier to use and it is not out of the question that these will become part of the regular theatre classroom in a few years' time. Still, good models will always require a range of expertise to build, so cross-disciplinary partnerships with departments of architecture, archaeology, engineering, etc., will remain important for this area of study for the foreseeable future. Scholars working individually will see that setting very specific, modest goals will increase their chances of achieving success.

Not only must such scholars be skilled academically and technically, they must also learn to be savvy at preserving and distributing their work. Continual advancements in technology will in the coming years render today's hardware and software useless. One great challenge for those who use computers for research today will be to guard against their scholarly work becoming difficult or even impossible to access. Scholars should strive to learn to use the most stable software packages in order to reduce the likelihood of their work becoming obsolete. At the same time, they should keep in mind that the newest or most advanced tools may not always be the best choices for their work. The advanced solid modelling packages used by engineers, for instance, are capable of producing extraordinarily detailed and structurally accurate models, but it is rare that enough evidence exists to support such a reconstruction of a vanished historical theatre space. Today's computer industries would have their customers believe that they cannot live without the most current hardware and software, but in fact the more stable older generations of technology will in many cases well suit the purposes of humanities scholars.

Another great challenge facing those interested in computer reconstructions is the issue of publication. Paper publication remains the most respected method of contributing to scholarly discourse in humanities disciplines, including theatre history, and rightly so, given the ease with which non-refereed web "publication" is possible today. On the other hand, electronic media such as the internet and CD/DVDROMs are in many respects more natural settings for the electronic images, animations, and

interactive environments which computer modelling software can generate. An increased number of refereed internet journals or of paper journals willing to publish at least partially on CD or DVD will undoubtedly help alleviate some difficulties in this area. At the same time, those who produce digital images, animations, and navigable models should stay aware of the copyright issues which pertain to their work, since all the problems which electronic publication presents have not yet been overcome.

Along with other computer applications, computer modelling will almost certainly influence the way future theatre scholars conduct their work. More historians are beginning to see its possibilities, and their numbers should continue to increase as the months and years pass. At the same time, it is clear that the production of quality computer models of theatres will not take place in the absence of careful planning and considered effort. Scholars need to set high standards for their new computer models, building wherever possible on the lessons learned through more traditional theatre reconstructions. They need to challenge themselves to continually learn new skills so that they might take advantage of the computer tools most suitable for each of their projects. Finally, they must seek out ways to deal with the special problems of copyright and publication in digital media. So long as we continue to engage with these problems, there should be a great deal of work to do for many years to come.

4. Computer Visualization and the French Classical Theatre, the Hôtel de Bourgogne

Although computer visualization is becoming more and more common in theatre studies, very little of it has yet been done in the area of French Classical theatre. While a shame, this is not completely surprising, for whatever advantages recent developments in computer technology can afford, problems with historical evidence for seventeenth-century French theatres still remain. Still, while others have begun using computer models to reconstruct the theatres of other historical periods, a few, including myself, have begun taking up the theatre architecture of

seventeenth-century Paris. To date, I have begun seven models related to the French Classical theatre, but what follows I will only introduce a few of them. These models include varying degrees of detail, and they are based upon my own interpretations of the primary evidence associated with each space. As such, they are both conjectural and preliminary. As others learn about, examine, and criticize my work, I hope to be able to make many improvements.

The first is a model of Paris's Hôtel de Bourgogne, circa 1647 [Figure 2].[6] The history of this, the oldest public theatre in France, has been often recounted. Despite its undeniable importance as a historical performance space, evidence about this theatre's interior construction is sparse. Sixteenth-century property deeds provide the exterior dimensions of the space, while most of what we know about the interior is due to the survival of a carpenter's contract for the refurbishment of the interior in 1647.[7] This contract indicates the dimensions of the stage, and the division of the auditorium into ground-level *parterre*, boxes, and *amphithéâtre*.

Important questions remain about this theatre that cannot be answered with great certainty. For example, the height of the building is unknown. Although exterior views of the theatre have survived on seventeenth-century maps of Paris[8], it is unlikely that these are reliable indicators of the building's dimensions. In the case of my model, I have chosen to make the height-to-width ratio of the Hôtel de Bourgogne roughly proportional to scholarly models of Paris's second public theatre of the period, the Théâtre du Marais. This is by no means an ideal way to determine the building's height, since the height of the Marais is debatable, and the two theatres need not have had similar proportions, anyway. Since the Marais building was originally a tennis court, it was likely to be longer and was certainly narrower than the Bourgogne building.

Other points of contention about the Hôtel de Bourgogne include the

6 An earlier version of this model was featured in Williford, Christa, "Modelling Classical French Theatre Spaces: Three Reconstructions." In Tomlinson, Philip, ed. *French Classical Theatre Today: Teaching, Research, Performance*, (Amsterdam: Editions Rodopi, 2001).

7 Deierkauf-Holsboer, S. Wilma, *Le Théâtre de l'Hôtel de Bourgogne* (Paris: Nizet, 1968), Vol. 2, pp. 183-186.

8 Wiley, William L., *The Early Public Theatre in France* (Cambridge, MA: Harvard UP, 1960), p. 131 f.

arrangement of the boxes and the location and size of its amphitheatre. In 1976, Graham Barlow used Sir James Thornhill's 1717 drawing of the theatre's interior to suggest that in 1647 the boxes were tapered toward the rear of the auditorium and that the amphitheatre was located in front of them, just behind the *parterre*.[9] Other scholars had already posited a more rounded box arrangement.[10] However, the 1647 contract makes no clear reference to any arrangement of this sort; furthermore, the contract explicitly states that the 1647 renovations were to be based upon the 1644 renovations of the Marais interior. For these reasons, I have assumed, like still other historians, that the theatre's boxes followed the lines of the building's rectangular exterior and that the *amphithéâtre* was located above the second row of boxes, similar to the design of the Marais.[11]

In the current model [Figures 3-4], the stage holds a set based upon the 1635 engraving of Scudéry's *Comédie des comédiens*. While perhaps preferable to an empty stage, its use in the model is problematic because the engraving predates the renovations of the auditorium by twelve years. In addition, I have taken details for the model's interior décor from two well-known engravings from the era often identified with the Bourgogne theatre. The most famous, attributed to Abraham Bosse,[12] indicates something about the box decorations and supporting columns, as well as the design of a painted tapestry hanging from the stage front. As evidence, this engraving presents its own new set of problems, including the fact that it predates the builder's contracts and that it shows audience members seated on benches in the *parterre*, which was not common practice in the French public theatre of the period. In fact, taken as a whole, the model as a reconstruction presents some of the same kinds of problems as reconstructions of the Globe that pre-dated the

9 Barlow, Graham, "The Hôtel de Bourgogne According to Sir James Thornhill," *Theatre Research International* 1.2 (1976): 86-98.

10 Niemeyer, Charles, "The Hôtel de Bourgogne, France's First Popular Playhouse," *The Theatre Annual* (1947): 64-80; Illingworth, David, "L'Hôtel de Bourgogne: une salle de théâtre 'a l'italienne' à Paris en 1647?" *Revue d'histoire du théâtre* 23 (1971): 40-49; Lawrenson, T. E., *The French Stage and Playhouse in the Seventeenth Century*. 2nd ed. (New York: AMS Press, 1986), pp. 115, 234-235.

11 Roy, Donald, "La Scène de l'Hôtel de Bourgogne," *Revue d'histoire du théâtre* 14 (1962): 227-235; Wiley, "The Hôtel de Bourgogne: Another Look at France's First Public Theatre," *Studies in Philology* 70.5 (Dec. 1973).

12 This image appears in Wiley, *The Early Public Theatre*, p. 194 f.

archaeological discoveries of the late 1980s. Since very little of the evidence is historically coincidental, it is impossible to reconstruct anything more than a simplified, idealized version of the space.

5. Tennis Courts and the French Public Theatre

Besides the Hôtel de Bourgogne, a major choice for theatre performance space in Paris was the indoor tennis court. This might at first seem strange, but connections between tennis and theatre had been strong since the Renaissance,[13] when both tennis masters and actors were regularly employed by dukes and princes to play for courtiers in magnificent great halls. When an indoor tennis court was built on a European prince's estate, naturally tennis exhibitions were held there, and it is hardly surprising that court actors also made use of those smaller spaces on suitable occasions.

Indoor tennis, or real tennis, had also been a popular game in Paris, particularly in the sixteenth century. By the time the game's popularity waned in the seventeenth century, there were many tennis courts in Paris. Quite a few of these were at least temporarily used as performance spaces. For this reason, it is good for scholars and teachers to have a general idea of what this kind of space was like. Tennis courts were rectangular like the Hôtel de Bourgogne, but slightly narrower. They had openings at the top of the walls to let in light and air. They had gallery seats for spectators along one side or end. They had a flat and open floor space. To turn a tennis court into a theatre space, companies simply needed to add a raised platform, and convert the rest of the hall to provide additional seating. This could be done quite simply and cheaply for a short stay in the space, or it could be made a permanent architectural change if the acting troupe took over the court for a long period, like at the building that housed the Théâtre du Marais.

The design of my computer model of a tennis court [Figures 5-6] is based upon an illustration from a seventeenth-century French book on tennis.[14] Many of the

13 See de Bondt, Cees, "Tennis Court Theatres." [http://www.drammaturgia.it/giornale/spettacoli/sport/sport_articoli/tennis_english.htm].

14 This illustration is reproduced in Chevalley, Sylvie, *Molière en son temps: 1622-1673*

dimensions and material types are based on the documentary evidence of other instruction books for tennis. However, since it is primarily based on one illustration, the model should be considered to be of the generic variety with which Globe scholars worked without having a surplus of specific evidence. I should mention that though it is much less popular than it once was, indoor tennis (or "real tennis") is still played in some parts of Europe, so it is possible to see examples of these courts even today.[15]

6. Richelieu's Palais Cardinal Theatre

My model of Richelieu's Palais Cardinal theatre [Figure 7], which was the final major addition to Richelieu's grand Parisian home, is rather more complex than the models of the Hôtel de Bourgogne and the hypothetical tennis court.[16] This theatre was designed to display Richelieu's power and generosity to the French and foreign courts, and, not unexpectedly, is rather well documented. This famous painting of Richelieu with the royal family in its interior is one example as are several engravings of the stage set for the theatre's inaugural production of Jean Desmarets' *Mirame*. In addition, there are a pair of rather detailed written descriptions of the theatre from contemporary French historian Henri Sauval, and, finally, architects' plans and elevations from later periods, the earliest from about 1673.[17]

These several pieces of primary evidence naturally make a more detailed reconstruction possible, yet it is not without its problems. The evidence is inconclusive on several points, and even contradictory on others. First of all, there

(Paris: Editions Minkoff, 1973), p. 22.

15 For more information see "The Royal Tennis Court, Hampton Court Palace" [http://www.realtennis.gbrit.com/]

16 For a more detailed presentation of this model and the evidence upon which it is based, see Williford, Christa, "A Computer Reconstruction of the Palais Cardinal Theatre, 1641." *Theatre Research International* (Autumn 2000), pp. 233-247.

17 Reproductions of some of the visual evidence may be found in Scott, Virginia, *The Commédia dell'Arte in Paris, 1644-1697* (Charlottesville: UP of VA, 1990), p. 88, and Lawrenson, T. E., *The French Stage and Playhouse in the XVIIth Century* 2nd ed. (New York: AMS Press, 1986), pp. 157, 239. See also Sauval, Henri, *Histoire et récherches des antiquités de la ville de Paris* (Paris: Moette, 1724), Vol. 2, pp. 161-163, and Vol. 3, pp. 46-47.

is obvious confusion about the theatre's apparent size. The theatre in the painting appears significantly more intimate than that indicated by the engravings of the set for *Mirame*, or that described by Sauval, who at one point estimates the capacity of the space at 3000. Clearly allowances for artistic license and exaggeration must be made. In the end, when determining the size of the model, I chose to rely on the specific measurement of the room's width cited by Sauval, which roughly matches the later plan and elevation [Figure 8].

Another contradiction centers on the configuration of the theatre's auditorium. According to all the visual evidence, the auditorium floor seems to be flat. Sauval, however, says that the floor consists of twenty-seven shallow steps stretching from one side of the room to the other and rising from near the stage to the back of the auditorium.[18] I puzzled over this question for many months and throughout various versions of this model, looking for some corroboration for Sauval. In the end, I arrived at a solution when considering a totally separate problem: the entrances to the balconies. The later plan of the theatre shows that quite thick and probably load-bearing walls surrounded the room. These would have been difficult to penetrate for the purposes of creating upper-level entrances for the balconies. If the auditorium was stepped, however, like Sauval says, entrances to the balconies from outside the room would not have been necessary, since the highest level of the steps at the back of the auditorium could have intersected with the lowest balcony on either side.

To understand this, it is best to look at the model. First, a view of the stage [Figure 9] shows the details from the *Mirame* engravings plus additional details from the painting. I added the figure of Cardinal Richelieu for purposes of scale, which much more closely matches the *Mirame* engravings than the painting of the interior. A view of the auditorium from the stage [Figure 10] exposes the awkwardness of my hypothetical theatre's design, particularly where its side balconies intersect with its auditorium steps. Interestingly, Sauval seems to be of a similar opinion when he expresses distaste for the addition of the balconies to the room.[19] At this stage in my reconstruction (published in 2000), I simply left the wall bare due to lack of

18 Sauval, *op. cit.*, Vol. 2, p. 162.

19 Sauval, *op. cit.*, Vol. 2, p. 162.

evidence. However, it is certain the original back wall would not have been without some architectural elaboration.

More recently I have arrived at a more elegant arrangement. We know that much of this theatre's stage machinery was directly imported from Italy, as was its proscenium arch design. Taking some of the architectural details from the 1618 Teatro Farnese, Parma,[20] I have erected a hypothetical arcade structure at the back of the theatre that more elegantly hides the access stairs to the side balconies [Figure 11]. To this I have added a low platform [Figure 12], such as would have been used for seating the royal family at Richelieu's command performances. Since this is not based on direct evidence, I will be seeking further corroboration from architectural historians. In addition, views of the stage from my hypothetical royal platform are intriguing: in them, the platform partially obscures the auditorium steps [Figure 13]. It is enticing to consider that the complexity of lines generated at such a viewpoint was the reason that the anonymous painter might have suppressed the detail of the steps at Richelieu's theatre.

7. The Use of Computer Models in the Theatre Classroom

As with the Globe scholars, my research on the seventeenth-century French theatre using digital technology has shown some of the problems and possibilities of historical theatre reconstructions. Unsurprisingly, the limitations of evidence remain the greatest challenges to the reconstruction process. By the same token, however, the act of preparing digital reconstructions of these spaces, particularly the Palais Cardinal theatre, has created opportunities to explore the relationships among the different pieces of evidence with new eyes. The challenge of making one's vague ideas about a space concrete within a computer model has a tendency to expose flaws in one's analysis which a purely verbal description of the space might be able to finesse. Equally important to the process, however, has been writing about the models I have created, since it is only through the explanation of the methods I have used in creating them that others can judge their value as scholarship.

20 For photos of the Teatro Farnese, see "Parma, Teatro Farnese" [http://www.andreas-praefcke.de/carthalia/italy/i_parma_teatrofarnese.htm]

The use of digital reconstructions in the classroom presents new challenges as well as opportunities. As I have shown here, computer models of the vanished theatres of seventeenth-century Paris are not illustrations of historical fact; instead, they are useful but inevitably flawed attempts to recapture a past that is forever lost. Naturally, students who understand the process of historical reconstruction can best analyse and use reconstructive models. Students must closely examine the evidence used in reconstructions before they can evaluate them properly. It is important for them to know which elements of a model are purely conjectural and which relate more closely to such evidence. The more complex a model becomes, the more complex the relationships between facts and conjecture become within it. For this reason, it is often useful to eliminate as much conjecture and extraneous detail as possible.

For classroom purposes, it is important that new digital models are put within an appropriate context, making use of as many visual resources as possible. To use the example of the Hôtel de Bourgogne model, a simple orthographic projection allows easy comparison with other scholars' theories about the theatre [Figure 14]. Where one wishes to express visually the interrelationships between different pieces of primary evidence for a theatre, as in the case of the Palais Cardinal, one can produce a simplified model that also serves as a visual index, helping to put the model in the context of the evidence upon which it is based [Figure 15]. Using the conventions of today's multimedia presentations, a wealth of supplementary information could be provided in text links to the major parts of a model, perhaps as part of a larger multimedia presentation on French theatre architecture on the web or on CD/DVDROM. Finally, and most importantly, in my mind, students might use computers to attempt reconstructions themselves. After completing their own models, they would surely be better equipped to judge critically and thoughtfully the solutions professional scholars might propose.

Clearly the reconstructions presented here are only a beginning; considerable work remains to be done on these and other French Classical theatres. What is also clear is that the time has come for specialists, preferably in collaboration, to learn to exploit more fully the potential of computer technology for this area of study. Digital reconstruction is both a convenient and a useful tool for doing history, and it

offers attractive possibilities for tomorrow's teachers. I believe that rich and exciting work remains to be done, so long as those engaged in this process think carefully and creatively about the ways they do their research and present their findings.