

## ABSTRACT

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PERCEPTION IN JOHN ADAMS'S  
*DOCTOR ATOMIC*

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This thesis is the first scholarly study of John Adams's 2005 opera *Doctor Atomic*. The study includes a brief history of the opera. It then concentrates specifically on one aspect of the work: time perception. Using a newly developed comprehensive methodology, I examine the manipulation of "clock time," "stage time," and "psychological time" in the libretto, the score, and the staging of *Doctor Atomic*. Thus, a dichotomy between poetry and prose in the "found" texts of Peter Sellars's libretto is reflected in a similar psychological time dichotomy of "now" vs. the timeless. Adams's score accentuates this point by relying on compositional techniques of the Baroque, as well as effectively elongates stage time in the final countdown scene. Finally, the analysis of the 2007 Amsterdam production of the opera reveals that a combination of props, blocking, and lighting in Sellars's staging contributes to the manipulation of the audience's perception of time.

THE MANIPULATION OF TIME PERCEPTION IN JOHN ADAMS'S  
*DOCTOR ATOMIC*

By

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## Introduction

On October 1, 2005, the curtain rose for the premiere of one of the first significant operas of the twenty-first century. John Adams's *Doctor Atomic*, written in collaboration with librettist Peter Sellars, details the month before the first test of an atomic bomb. Two of his previous operas, *Nixon in China* (1987) and *The Death of Klinghoffer* (1991), have attracted widespread scholarly and popular interest. Like those operas, *Doctor Atomic* can be considered a "CNN opera": its libretto is based on a relatively recent, documented historical event, rather than a fictional scenario.<sup>1</sup> Additionally, operas that are usually given the moniker of "CNN opera" deal with politically charged subjects that are of a sensational nature: Nixon's trip to China, the hijacking of a passenger ship, and, in the case of *Doctor Atomic*, the first test of a nuclear bomb and the birth of the nuclear age.<sup>2</sup>

This thesis is the first scholarly study of *Doctor Atomic*. A work by an established composer, its critical and popular success have already shown that *Doctor Atomic* is a work with the possibility of longevity in the repertoire. For that reason alone, it surely deserves investigation, and I hope that my research will lead to further scholarly scrutiny of this composition.

*Doctor Atomic*'s significance, however, extends beyond its illustrious pedigree and its success, and concerns the inner workings of the opera itself. My particular area of focus in the present study is the issue of time perception in the

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<sup>1</sup> The term "CNN opera" is based on the 24-hour cable news network of the same name.

<sup>2</sup> The term itself is one that the composer dislikes, but it is far too useful to discard and no better alternative has been suggested. See: Thomas May, "John Adams on *Doctor Atomic*," in *The John Adams Reader: Essential Writings on an American Composer*, Thomas May, ed. (Pompton Plains, N.J.: Amadeus, 2006), 229.



work, and the manner of its examination presented herein is the first of its kind. The study of time in music has virtually never focused on staged music, instead concentrating on absolute music. While the earlier research has been enlightening and insightful, the study of time in music needs to be expanded by developing analytical methodology applicable to staged works, in which, as we shall see, multiple levels of time perception come into play.

Like other CNN operas, *Doctor Atomic* lends itself particularly well to the study of time perception due to the urgency of its subject matter. The opera considers an event that occurred within living memory. Aside from the layers of time in audience perception and on stage common to opera as a genre, therefore, *Doctor Atomic* exhibits the added complexity inherent in the story itself.

Furthermore, through an examination of time as it exists in *Doctor Atomic*, one can gain a fuller understanding of temporal processes in the operatic genre as a whole. This thesis therefore aims to develop a working methodology for the study of time in non-absolute music, a field that has been sorely neglected in academic scholarship. I will begin with a discussion of scholarly literature relevant to this study, and outline the fundamental issues that the present research aims to address.

### Literature Review – Time in Music

There were two significant areas of study involved in the preparation of this thesis: time in music; and the works and style of John Adams, specifically that of *Doctor Atomic*. The study of time in music is not a well-established field. There are many inherent problems in studying time, one being the individual nature of perception. For instance, it is often said that “time flies when you are having fun,” or

“time goes faster as you get older;” these sayings point to a variance in individual perception of time. How, then, are we to study a perception that changes on a person-by-person basis?

Four sources that address this conundrum have been particularly useful in framing the debate presented here. Barbara R. Barry’s *Musical Time: The Sense of Order* is the earliest of the four, and the most comprehensive.<sup>3</sup> Barry addresses the dearth of writing on the subject in her introduction: “There is still very little relevant material in music theory concerned with factors of perceptual experience.”<sup>4</sup> She uses this statement as a justification for incorporating research from other disciplines, specifically psychological time studies. One factor that Barry takes into consideration is the musical competency of the listener. She argues: “Perception of musical time, then, can be considered as a function of the ability to create organization out of often complex stimuli.”<sup>5</sup> It follows that listeners who have training in music will be better able to organize those stimuli, and thus their perception of time will be altered.

One issue that arises from Barry’s conclusion is the question of what type of an audience to assume when discussing time perception in a particular piece. For the purposes of this thesis, I will assume an advanced level of competency in a listener, including familiarity with basic musical structures and major operatic styles. This choice has been driven by necessity: an uninformed and inexperienced listener may not be able to pick up on some of the nuance that is built into the layers of time in *Doctor Atomic*.

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<sup>3</sup> Barbara R. Barry, *Musical Time: The Sense of Order* (Stuyvesant, NY: Pendragon Press, 1990).

<sup>4</sup> *Ibid.*, xiv.

<sup>5</sup> *Ibid.*, 13.

Barry is also responsible for setting up terminology for the study of music and time. Specifically, she distinguishes between four types of time in music: analytic, synthetic, formal, and empirical.<sup>6</sup> Synthetic time is the continuous unbroken flow of clock time; analytic time refers to specific moments within synthetic time. Formal and empirical time use things outside of pure time as referents: specifically, formal time uses the temporal characteristics of one standard object to classify another, such as the classification of a piece as a string quartet, while empirical time determines the differences between the object at hand and the referent, such as what differentiates Beethoven's late quartets. In her study, Barry develops a new style of "critical analysis" of time in a musical work, which she calls the "empirical/analytic" method.<sup>7</sup> She describes this as the methodology that "regards the event as given source material, from which follows explanations of components and relationships."<sup>8</sup> Barry's analytical method forms the foundation for the present study.

Finally, Barry introduces the idea of "temporal consciousness": an awareness that allows for the logical connection of events past and present, followed by the interpretation of these connected events.<sup>9</sup> This concept will be used to describe the various layers of time incorporated into the libretto of *Doctor Atomic*. For example, the stratification between different time layers in *Doctor Atomic* can only be understood through the framework of temporal consciousness.<sup>10</sup>

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<sup>6</sup> Ibid., 81-3.

<sup>7</sup> Ibid., 86.

<sup>8</sup> Ibid., 83.

<sup>9</sup> Ibid., 87.

The main weakness of Barry's approach is shared with the majority of scholarship on time in music: research has been limited in scope exclusively to absolute music, while program music, and especially staged music, is assiduously avoided. Even when Barry delves into opera with Richard Wagner's *Tristan und Isolde*, she limits herself to the prelude. The sustained nature of this approach is baffling, as one is inevitably confronted with layers of time in opera: those of the libretto, the score, the performance, and the perception of the audience. The goal of this thesis is to begin the process of addressing this complexity.

There is one significant exception to the dearth of study of time in programmatic music: Carolyn Abbate has addressed the issue, but in a manner that minimizes its importance. In an article on Paul Dukas's *The Sorcerer's Apprentice*, Abbate repeatedly asks the question "Can music have a past tense?"<sup>11</sup> Abbate answers her own question by stating that "in one respect, music's existence as a temporal art precludes its speaking 'in the past tense.'"<sup>12</sup> She reaffirms this statement by writing: "certainly a long tradition of musical analysis rooted in Hanslick's aesthetics of form would argue that repetition actually creates structure, architecture, hence stasis: time frozen."<sup>13</sup> This view of time as frozen and non-tensed is not nearly encompassing enough for the realm in which program music and opera actually exist. This thesis

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<sup>10</sup> A similar concept, "psychological time," is introduced in David Grayson's article on time perception in *Pelléas et Mélisande*, one of the rare examples of research that addresses time in staged music. The concepts are close enough for their names to be interchangeable and will be used as such throughout the present project. See: David Grayson, "Waiting for Golaud: The Concept of Time in *Pelléas*," in *Debussy Studies*, ed. Richard Langham Smith (Cambridge: Cambridge University Press, 1997), 26-45.

<sup>11</sup> Carolyn Abbate, "What the Sorcerer Said," in *Unsung Voices: Opera and Musical Narrative in the Nineteenth Century* (Princeton, NJ: Princeton University Press, 1991), 30-60.

<sup>12</sup> *Ibid.*, 53.

<sup>13</sup> *Ibid.*, 55.

will show that there are in fact many layers to time in an opera, not all of them in the present. Indeed, even the idea of “present” is up for debate. Is it the present as experienced by the characters or by the audience? Abbate does not address this issue.

In 1993, the journal *Contemporary Music Review* released a special issue dedicated to the subject of time in musical thought.<sup>14</sup> The editor, Jonathan D. Kramer, assembled thirteen articles that address the concept of time in music; however like Barry, none of the authors deals with issues unique to staged music. The closest attempt comes from Thomas DeLio in his work “Time Transfigured: Erik Satie’s *Parade*.”<sup>15</sup> Here, DeLio examines Satie’s ballet commissioned by the famous Ballet Russes company. By carefully controlling the speed and duration of musical events, DeLio finds, Satie sets up the temporal levels with which he will play throughout the entire score. What DeLio does not address is how the libretto, choreography, and design of the ballet impact these temporal levels.

Thomas Reiner’s *Semiotics of Musical Time* attempts to “examine the extent to which musical time is a product of signs, sign-systems, and sign-oriented behaviour.”<sup>16</sup> In his monograph, Reiner makes a compelling argument for an answer to an unasked question: why should musical time be separated from time in general, or synthetic time as Barry would call it? Reiner argues that the separation is only legitimate if time itself has unique semiotic properties. In a discussion of what

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<sup>14</sup> Jonathan D. Kramer, ed. *Time in Contemporary Musical Thought* (Switzerland: Harwood Academic Publishers, 1993).

<sup>15</sup> Thomas DeLio, "Time Transfigured: Erik Satie's *Parade*," in *Time in Contemporary Musical Thought*, 141-62.

<sup>16</sup> Thomas Reiner, *Semiotics of Musical Time* (New York, NY: Peter Lang, 2000) 2.

constitutes time, Reiner notes that time is based on our perceptions: aging, the apparent motion of the sun, internal memories, and more:

Much of what constitutes time has been shown to result from sign-related activities. Even if one wishes to insist on non-semiotic concepts of time... one will still have to enter the semiotic domain as soon as the non-semiotic types of time, in order to make them more feasible, are described with reference to, and thus to some extent represented by, concrete occurrences and situations.<sup>17</sup>

Having established the semiotic nature of time, Reiner is able to defend the approach he takes throughout the book, an “approach in which musical time is considered as a type of time.”<sup>18</sup> Reiner suggests that when time and music are combined to form “musical time,” the new entity contains the semiotics of both parts on their own. This conclusion solidifies the foundation upon which the study of musical time should be based. By challenging an assumption that would undermine the study of musical time, Reiner allows the field to develop without remaining vulnerable to questions of relevance.

David Burrows, in his *Time and the Warm Body*, describes the “now” as a point “between going and stabilizing. It is the charged balancing point where they meet.”<sup>19</sup> This definition provides much of the foundation necessary for the discussion of the “now” of operatic time later in this thesis. In the present study of *Doctor Atomic*, the operatic now is the point between the timeless and the real world today. The real world today is the 21<sup>st</sup> century, while the timeless spans millennia; the “now” of the opera is that point in between, the fateful summer months of 1945.

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<sup>17</sup> Ibid., 47-8.

<sup>18</sup> Ibid.

<sup>19</sup> David Burrows, *Time and the Warm Body: A Musical Perspective on the Construction of Time* (Boston, MA: Brill, 2007), ix.

Apart from the studies on musical time, two sources pertaining specifically to *Doctor Atomic* proved invaluable in the preparation of this thesis. Thomas May's *The John Adams Reader* contains an illuminating interview with the composer regarding the opera. In the interview, mentions of the oratorio *El Niño* and other CNN operas by Adams were useful in placing *Doctor Atomic* in the context of its family tree. May is a fairly gentle interviewer, and tends to refrain from asking difficult or controversial questions. At one point he allows Adams to avoid the touchy subject of the change of librettists by saying only that the original librettist Alice Goodman "simply wasn't able to work on" *Doctor Atomic*, and May does not press the matter.<sup>20</sup> In fact there were significant issues involving Goodman, which Adams does not discuss; they will be addressed in Chapter 2. Nevertheless, the amount of information May gleans from Adams is considerable, and the interview is therefore one of the most reliable existing primary sources about the opera.

The other primary source that makes for fascinating reading and excellent research material is the oral history project *Doctor Atomic: The Making of an American Opera*.<sup>21</sup> Between 2004 and 2006, Caroline Crawford and Jon Else conducted a series of interviews with some of the key players in the production of *Doctor Atomic*. The most elucidating of the interviews is one with Pamela Rosenberg, the general director of the San Francisco Opera at the time of the opera's commission and premiere. She sheds light on many of the less discussed aspects of the production,

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<sup>20</sup> May, in *The John Adams Reader*, 123.

<sup>21</sup> Pamela Rosenberg, Donald Runnicles, Clifford A. Cranna, Jr., Ian Robertson, John Adams, *Doctor Atomic: The Making of an American Opera*, interviews conducted by Caroline Crawford and Jon Else, 2005- 2006, Regional Oral History Office, The Bancroft Library, University of California, Berkeley, 2008.

including insight into the difficulties that accompanied the early stages of the creative process. The oral history project also contains an interview with John Adams; it is useful in corroborating other interviews, but does not provide any strikingly new information. Another item of interest is a transcript of Peter Sellars's remarks at a workshop; however, those remarks lie outside of the scope of this thesis. Overall, this collection of primary materials offers a valuable resource for Chapter 1 of the present thesis.

Finally, I have used a number of Internet resources, including video interviews with Adams available on YouTube. The ease with which research can be conducted on the Internet is invaluable, but the need to be ever-vigilant for reliable sources is a challenge. What can the researcher accept as credible information, and what must be set aside as suspect?

### *The Challenge of Secondary Sources*

*Doctor Atomic* is a new work that has not yet attracted any serious scholarly consideration. While there is a wealth of information about the opera, it consists almost exclusively of primary sources: interviews, newspaper reviews and articles, video, score, and libretto. I was unable, despite several attempts, to secure an interview with John Adams himself.

In addition, there have been some articles that have bridged the gap between primary and secondary source, such as Alex Ross's preview in *The New Yorker* of 3 October 2005.<sup>22</sup> This article combines primary sources with Ross's own critical

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<sup>22</sup> Alex Ross, "Countdown," *New Yorker*, 3 October 2005.



interpretation of the opera. As well written as the article is, however, it still is no substitute for peer-reviewed scholarship.

One of the significant problems encountered in the writing of this thesis was a relative paucity of relevant secondary sources regarding time perception in opera. As mentioned above, very few studies address the issue of time in staged music, since the majority of work on the subject focuses on absolute music (or, alternatively, stage music taken out of context and treated as if it were absolute). The books and articles listed above were helpful in delineating a vocabulary and a basic methodology with which the topic at hand could be discussed. They, and similar articles, were of limited use, however, with respect to creating an analytic approach to time as it applies to *Doctor Atomic*. Much of that approach had to be developed specifically for the present study.

The argument in this thesis, therefore, is based primarily on my interpretation of primary sources and application of essentially new methodology to analysis of the work. I have borrowed liberally from the terminology of previous studies of time in music but have found it necessary to apply concepts from the fields of film studies and literary criticism.

Additionally, I have had to harness the power of the Internet for much of the research. Using a website like YouTube worries me as a scholar. There is no guarantee that a video clip I have used will be there the next day, making verification of my work by other researchers difficult. Additionally, there is still a lingering distrust of web-based scholarship in the academic community. This is an

apprehension I can fully understand, as the quality of scholarship on the Internet is not controlled by traditional academic methods.

For these reasons, I have attempted to limit my use of Internet sources to primary material; there is no need for a peer review of a John Adams interview, for example. Only relevant portions of online resources have been included, and no clips of interviews I have used have been decontextualized. Thus, when John Adams talks of “Batter My Heart” in a YouTube interview, nothing before or after it impacts his observations. I have also provided several links to footage of the scenes in question. These scenes can also be found on a commercially available DVD, and have been included here merely for the convenience of the reader.

There is one significant exception to my use of the Internet for primary sources. Isaac Botkin’s blog essay “Color Theory for Cinematographers” is a fascinating look at the use of color in the movie *Black Hawk Down*.<sup>23</sup> Botkin has worked in cinematography and is the author of the book *Outside Hollywood*.<sup>24</sup> In the blog entry, Botkin breaks the movie down into scenes and analyzes the main color palette utilized in each scene, and its perceptual impact on the audience. He notes the reversal of the traditional meaning of “warm” colors (brown, yellow) and “cool” colors (blue, white) in the movie. The “warm” colors typically mean the safety of home and “cool” colors signify an alien, foreign environment; however, in *Black Hawk Down*, the dangers of Mogadishu are captured in “warm” colors while safety is portrayed by “cool” ones. As a summary of his analysis, Botkin presents a color strip

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<sup>23</sup> Isaac Botkin, “Color Theory for Cinematographers,” 5 March 2009, <<http://www.outside-hollywood.com/2009/03/color-theory-for-cinematographers/>>, accessed 23 March 2010.

<sup>24</sup> Isaac Botkin, *Outside Hollywood: The Young Christian’s Guide to Vocational Filmmaking* (San Antonio, TX: Vision Forum, 2007).

of the entire movie – a thin vertical band in which the predominant colors are presented from the beginning of the movie to the end (top to bottom), delineating the relative distribution of “safe” and “unsafe” scenes. Botkin states that the play with color can help set the mood as much as anything else in the movie. Once the audience is accustomed to the color scheme, it instantly knows what to expect from the next image, and is emotionally prepared for it.

After a search for similar research in a traditional format, I found nothing as convincing or cutting-edge as Botkin’s analysis. The idea of color in lighting being used to set a mood is nothing new, of course, but the directness of Botkin’s argument, and the new method of a color strip analysis make his blog the best resource. It allows me to grasp the information relevant to my own work on staging *Doctor Atomic* without the necessity of learning film studies jargon. The implications of the use of a blog article are interesting to me. If, as in the case of Botkin, there is a well-reasoned argument, why should we not use it? I believe that as blogs and other similar Internet resources become more prevalent, there will be a need to incorporate them into opera scholarship especially regarding topics that have not yet attracted peer-reviewed scholarship of a more traditional kind. The solution, as with printed sources, is to evaluate their quality and relevance on a case-by-case basis.

### *Methodology and Outline*

Over the following four chapters, I will use a series of terms related to the perception of time in opera; these are defined below. “Clock time” is the most basic form of time – time as measured by a watch. The clock time of an opera or a scene is literally its running time. This stands in juxtaposition to “stage time,” which is time as

it exists within the opera itself. The first act of *Doctor Atomic* encompasses nearly a month of the summer of 1945 in stage time, while running just under 90 minutes in clock time. Finally, at the juxtaposition of clock and stage times can be found “psychological time,” or the time that is being conveyed to the audience. Laboratory scenes in *Doctor Atomic* are perceived as being precisely in the month before the first test of the atomic bomb, while intimate home scenes are perceived as timeless. In this thesis, I will use the terminology outlined here to examine the stratification of time in the libretto, music, and staging of the opera.

Since no other scholarly work has yet been published about *Doctor Atomic*, it is necessary to provide a basic background of the work before any further examination may be undertaken. Chapter 1 of the thesis therefore provides a detailed history of the opera itself. The following three chapters offer a detailed study of time perception and manipulation in *Doctor Atomic*. Thus, Chapter 2 considers the manipulation of time in the opera’s libretto. Specifically, the chapter addresses the multiple layers of time in Peter Sellars’s text, including the “timelessness” signified by the use of poetry, with the “prose” of scientific reports and other documentary materials representing the “now” of the opera: 1945. An examination of the “timeless” sections is then undertaken by analyzing Robert Oppenheimer’s act I aria “Batter My Heart,” Pasqualita’s act II song “Cloud Flower Lullaby,” and Kitty Oppenheimer’s aria “Am I in Your Light?” which, like “Batter My Heart,” is in act I.

Chapter 3 contains an analysis of the manipulation of time in the score of *Doctor Atomic*. By examining the music for “Batter My Heart,” I aim to show how Adams utilized stylistic and musical conventions from a different historical era to

heighten the sense of timelessness inherent in the poetic text. The act II countdown scene provides an opportunity to appraise Adams's use of compositional techniques in the service of drastically reducing the ratio of stage time to clock time.

Finally, Chapter 4 deals with the staging of *Doctor Atomic* by Peter Sellars, as seen in the DVD of the 2007 production in Amsterdam that he directed. The fact that Sellars directed both the premiere and the Amsterdam productions allows for some amount of certainty that what is seen in the DVD is what was in the minds of the original production team. By examining how Sellars handles transitions between act I, scenes 1 and 2, and 2 and 3, as well as the final countdown scene, we can better understand how staging can be used to alter the audience's time perception in a work like *Doctor Atomic*.

## Chapter 1: The History of *Doctor Atomic*

On 27 September 1999, the San Francisco Opera Company announced Pamela Rosenberg as its new general director.<sup>25</sup> In her first meeting with the company's board of directors shortly thereafter, she proposed a series of *Faust* operas, including what she described as an "American *Faust*" based on the career of Robert Oppenheimer, the so-called "father of the atomic bomb."<sup>26</sup> When she approached John Adams about writing the opera in November 1999, he was not enthusiastic about the project, particularly its *Faust* angle, and initially refused the commission, saying: "I don't have an opera left in me."<sup>27</sup> Rosenberg recounted Adams's reasoning in a 2005 interview:

That [the desire not to have the opera compared piece-by-piece to Goethe's *Faust*] was his initial reason for not wanting to be pressed into that kind of mold, or having people seek in what he wrote—the correspondences to that. And then, he thinks Faust is a very European figure. Later on, when he became even more vociferous about its not being a Faust subject, he said, "The Faust idea is a very European one, and this is American, so the bomb is our myth," he said, "and Faust is a European myth."<sup>28</sup>

Rosenberg was finally able to convince Adams to take the commission by allowing him not to cast Oppenheimer as an "American Faust." Once Adams had

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<sup>25</sup> Allan Ulrich, "From S.F. Opera fan to new general director," *San Francisco Chronicle*, 28 September 1999, sec. D, 1.

<sup>26</sup> Rosenberg et al., 1.

<sup>27</sup> Ibid., 2. Most sources place the meeting in late 1999, but Adams himself recalls the meeting as having occurred "in the late winter or early spring of 2002." Thomas May, "John Adams on *Doctor Atomic*," in *The John Adams Reader: Essential Writings on an American Composer*, Thomas May, ed. (Pompton Plains, N.J.: Amadeus, 2006), 219.

<sup>28</sup> Ibid., 3.

agreed to write the opera, he immediately began the preliminary work on what would become *Doctor Atomic*. When he said in an interview with Thomas May that “[he] didn’t start work on the opera until January of 2004” he appears to have either forgotten the details of what happened or merely to be talking about the actual composition of the piece.<sup>29</sup> The interview with Rosenberg and numerous newspaper articles all clearly indicate that work on *Doctor Atomic* had begun by no later than 2001 with background research and the initial attempts to craft a libretto.<sup>30</sup> Despite these chronological inconsistencies, what is certain are the difficulties Adams encountered in obtaining a suitable libretto for the work.

Initially, Adams made contact with the British librettist Alice Goodman, with whom he had worked on *Nixon in China* and *The Death of Klinghoffer*. After a long period of fruitless effort, Goodman was replaced by Peter Sellars, with whom Adams also had worked before and who had already been tapped as the director for *Doctor Atomic*. Adams has been very circumspect when describing the reasons for this change. In a 2004 interview, for instance, he portrayed Goodman’s role in the project in such an ambiguous way as to make it seem as if she had never been its librettist at all: “Alice was very drawn to this story, and she worked very hard on it, and read probably more than Peter and I did together. But her life had changed in the ten years between now and the creation of *Klinghoffer*, and she simply wasn’t able to work on it.”<sup>31</sup>

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<sup>29</sup> May, in *The John Adams Reader*, 219.

<sup>30</sup> Rosenberg, et al., 6.

<sup>31</sup> May, in *The John Adams Reader*, 123.

Rosenberg paints a significantly more involved and confusing picture. Until March or April 2004, Goodman had evidently been working on the libretto for Adams. Indeed, in a June 2003 meeting, Adams, Sellars, and Goodman had offered Rosenberg a preliminary scenario of the work, in which act I centered on the first test of the atomic bomb and act II on the 1954 House Un-American Activities Committee (HUAC) hearings, in which Robert Oppenheimer was involved, and the Bikini Atoll nuclear tests. After this, Goodman's work on the project stalled. In the fall of 2003, when Adams had received nothing from Goodman, he began to get worried and asked Rosenberg to speak with the librettist during an upcoming trip to England. Rosenberg was convinced everything was fine and relayed the information to Adams. The same pattern continued; Rosenberg spoke with Goodman again on another trip, and even obtained a deadline extension for the writer. Then, in "March, or the beginning of April" 2004, Goodman sent a letter to Adams saying "that she was withdrawing because it was an anti-Semitic project." Rosenberg does not reveal what Goodman thought was anti-Semitic about the opera; indeed, the issue seems to have left her puzzled.<sup>32</sup>

There are no anti-Semitic sentiments to be found in the opera, and two of the main characters (Oppenheimer and Teller) are actually Jewish; Goodman's assertion therefore does not make sense. Caroline Crawford, who conducted the interview with Rosenberg, offered that Goodman might have viewed the scene with HUAC as anti-Semitic, since Oppenheimer would have been verbally attacked and slandered during the hearings.<sup>33</sup> Rosenberg does not confirm or deny this suggestion, but, although the

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<sup>32</sup> The information in this paragraph is drawn from Rosenberg et al., 5-9.



scene was never written, the historical events upon which it was based could make such a reaction plausible. The theory is met, however, with the problem that Goodman helped to outline the scenario and had a chance to voice her objections much earlier in the process, but did not. Rosenberg seems to imply that Goodman manufactured a non-existent issue to avoid responsibility for not completing the work.<sup>34</sup> Regardless of the circumstances surrounding Goodman's departure from the production team, Adams was left to find another librettist. Therefore, he decided to ask Sellars to write the libretto for *Doctor Atomic*, as he had done for Adams's earlier composition *El Niño*.<sup>35</sup>

Sellars and Adams made a decision to craft the libretto from "found" sources, to be stitched together in a collage of quotations.<sup>36</sup> These included governmental reports, Tewa Indian song texts, the *Bhagavad Gita*, and the poetry of John Donne, Charles Baudelaire, and Muriel Rukeyser. In the process of creating the new libretto, the original scenario of the opera was altered. The Bikini Atoll tests were dropped from the storyline, and all references to Oppenheimer's appearances before HUAC were omitted. When Sellars and Adams brought the first draft of the new libretto to Rosenberg, both acts I and II dealt with the events leading up to the first test of the atomic bomb. Rosenberg commented: "[Adams and Sellars] had so much material

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<sup>33</sup> Ibid., 9.

<sup>34</sup> Ibid.

<sup>35</sup> Ibid.

<sup>36</sup> May, in *The John Adams Reader*, 222.

that they actually then realized that the whole opera would [focus on] the two weeks leading up to the test.”<sup>37</sup> The final version of the opera reflects this change.

Some difficulties in obtaining rights for the “found” materials arose in the process of completing the opera. The daughter of Manhattan Project physicist Edward Teller originally would not consent to any excerpts from her father’s memoir being used. Evidently, she was afraid that the work “would make him into a Dr. Strangelove,” the iconoclastic warmonger from the 1964 Stanley Kubrick film of the same name.<sup>38</sup> Adams spent considerable effort in discussions convincing her that the opera would portray Teller in an even-handed light before she finally relented.

The music was composed rapidly, with the more than 500-page score completed over 18 months.<sup>39</sup> Its music showcases elements of Adams’s typical minimalistic style, as well as features inspired by Baroque music. *Doctor Atomic*’s dramaturgy is traditional in its use of a mostly linear, narrative plot, and incorporation of a number structure, including arias and choruses. A detailed explanation of this structure is included in Chapter 2.

*Doctor Atomic* was premiered on 1 October 2005 at the San Francisco Opera House and was generally well received. Since its first performance, the work has been staged six additional times, in Amsterdam, Chicago, New York City, Atlanta (semi-staged), London, and Saarbrücken, Germany.

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<sup>37</sup> Rosenberg, et al., 11.

<sup>38</sup> Ibid.

<sup>39</sup> May, in *The John Adams Reader*, 219.

## Synopsis

The primary character in *Doctor Atomic* is physicist Dr. J. Robert Oppenheimer (referred to as Oppie), who is forty-one at the time of the story. The part of Oppenheimer is set for a lyric bass, and was created by Gerald Finley. Oppenheimer's wife, Kitty, is a mezzo-soprano, while their Tewa maid Pasqualita calls for either a low mezzo or a contralto. At the San Francisco premiere these roles were performed, respectively, by Kristine Jepson and Beth Clayton. Physicists Edward Teller and Robert Wilson were created by the bass Richard Paul Fink and the tenor Thomas Glenn. Finally, two baritones, Eric Owens and James Maddalena, portrayed General Leslie Groves and meteorologist Jack Hubbard, while tenor Jay Hunter Morris sang the role of the camp doctor, Captain James Nolan. A chorus of scientists, technicians, their wives, and military personnel stationed at the Los Alamos, New Mexico and Trinity sites is also involved.<sup>40</sup>

The action of *Doctor Atomic* opens in June 1945 at the laboratory of the Manhattan Project in Los Alamos, New Mexico. The chorus outlines some of the basic principles of nuclear physics, and then sets the stage for the entire opera:

The end of June 1945 finds us  
expecting from day to day  
to hear of the explosion  
of the first atomic bomb  
devised by man.

While the chorus is singing, Oppenheimer and Teller enter. Despite his obsession with developing a thermonuclear weapon, Teller shows Oppenheimer a letter from a fellow Manhattan Project physicist, Leo Szilard, which calls upon the scientists

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<sup>40</sup> Original cast is listed in Joshua Kosman, "Using a trinity of unconventional drama, haunting score and poetry, S.F. Opera confronts our age's most terrifying topic," *San Francisco Chronicle*, 3 October 2005, sec. C, 1.

involved in the project to publicly question the morality of further development of the bomb, now that Germany has surrendered. Oppenheimer dismisses the letter by singing “I think it improper for a scientist to use his prestige as a platform for political pronouncements.”

Another physicist, Robert Wilson, expresses his desire to hold a meeting for the scientists to discuss the moral and social implications of the bomb. Furthermore, he mentions a petition he wants his colleagues to sign, urging President Harry S. Truman not to use the bomb in the war with Japan until the Japanese government has been made fully aware of its destructive capabilities. Oppenheimer also rejects this idea, warning Wilson that he very well may find himself in official trouble for his actions. Oppenheimer then details the government’s plans for bombing Japanese cities, which he learned while in Washington, DC. “It was agreed that psychological factors in selecting the targets are of great importance,” Oppenheimer notes. Teller is shocked by Oppenheimer’s use of his “scientific stature to give political advice in favor of immediate bombing.” The lead physicist then describes what may happen as a result of a nuclear explosion. “The visual effect of an atomic bombing would be tremendous. A brilliant luminescence rising to a height of up to twenty thousand feet. The neutron effect of the explosion would be dangerous to life for a radius of at least two-thirds of a mile.”

Scene 2 of the first act is set at the Oppenheimer’s Los Alamos house. Robert is completely absorbed in reading the documents he brought home from the lab, as his wife Kitty attempts to get his attention in her first aria of the opera, “Am I in Your Light?” Robert responds with a stanza from a poem by Baudelaire, “Let Me Inhale,

Deeply.” After the two join in a duet, Kitty ends the scene by describing the terrible effects of war and the need for love to create the perfect world.

The final scene of the first act is set on 15 July 1945 at the atomic bomb test site, called “Trinity.” We learn that elsewhere in the world, Truman is at the Potsdam meetings at which the Allies delineated their spheres of influence in Europe after the surrender of Germany. The government is pushing Oppenheimer and General Leslie Groves to test immediately so they may use atomic power as a bargaining chip with the Soviets. Meanwhile, the weather at the Trinity site is not cooperating with the government’s demands. A thunderstorm has arisen, and General Groves berates the chief meteorologist, Jack Hubbard, as if the bad weather were his fault. The main concern is that the partially armed bomb, which sits on a high tower, could be struck by lightning. Groves is driven to the point of madness by the unpredictable weather, and forces Hubbard to sign a weather report that promises good weather for the test, threatening, “If you are wrong, I will hang you.”

Captain James Nolan of the Army Medical Corps then warns Groves about the potential humanitarian disaster and need for an evacuation, should the winds shift and the nuclear fallout threaten the Trinity site. Groves makes the decision to forecast the weather himself from that point forward. As the scene draws to a close, Oppenheimer and Groves engage in inconsequential small talk, including a discussion of Groves’s diet. Oppenheimer is then left alone with the bomb, and act I closes with his aria “Batter My Heart,” set to a sonnet by John Donne.

Act II, which encompasses the final hours before the explosion of the world’s first atomic weapon, begins in the Oppenheimer’s home on the night of 15 July 1945.

Kitty and Pasqualita, her Tewa Indian maid, are alone in the house, since all the scientists have left Los Alamos for the Trinity site. In the aria “Wary of Time,” Kitty ruminates on death, war, and peace of the human spirit. This number is followed by an orchestral interlude, “Lightning in the Sangre de Cristos,” which depicts a storm developing over the New Mexico desert.

As scene 2 begins, Pasqualita sings the “Cloud-flower Lullaby” to the restless seven month-old Katherine Oppenheimer. The text of the lullaby serves as a loose metaphor foreshadowing the explosion of the bomb. Action then shifts to the Trinity site at midnight of 16 July 1945. Robert Wilson is discussing his next task with Hubbard: Wilson must climb the testing tower and place an instrument to measure the speed of the chain reaction on the bomb. From the tower, Wilson can see lightning in the distance, and he worries about possible malfunction. Hubbard discusses potential wind patterns and how they may impact the radioactive fallout with Wilson. To Hubbard, testing in the unpredictable weather is a “blunder of the first magnitude.”

Meanwhile, Edward Teller tells the assembled scientists and military personnel at the main observation bunker that physicist Enrico Fermi is taking bets as to whether or not the bomb will set ablaze Earth’s entire atmosphere. Oppenheimer reminds the scientists that they have data disproving this theory, but his optimism does little to lighten the mood at the test site. Hubbard returns to the main site and informs Groves that the storm is unpredictable, but there might be a window of opportunity between 5 and 6 a.m. Groves orders the test to be prepared for 5:30.

Scene 3 begins at 5:10 a.m., as the countdown commences. Groves complains about the scientists’ conflicting loyalties; Oppenheimer recites poetry in an attempt to

still his misgivings; and Kitty and Pasqualita wait for news at their home in Los Alamos. Teller mentions the existence of a betting pool to guess the yield of the atomic bomb. Oppenheimer predicts a low yield, as does Groves, while Teller believes that the bomb will achieve almost all of its “blackboard potential.” Oppenheimer has a grisly vision of Vishnu eating unnamed people, which is recounted in the chorus “At the Sight of This, Your Shape Stupendous.”

The final scene of the opera finds Groves concerned that Oppenheimer might be heading for a nervous breakdown. As the skies clear after the storm, a warning rocket is fired that signals five minutes until the test. After a flurry of activity, a second rocket is launched to signal two minutes; it sputters out prematurely, an act that Groves sees as an ominous sign. As the opera closes, the countdown continues. It is uncertain whether the bomb actually explodes prior to curtain, although it seems as if the explosion does occur in the final seconds of the work. Time has slowed nearly to a halt, as voices of Japanese people are heard in an eerie foreshadowing of the consequences of the test, to follow less than a month later.

## Chapter 2: Time and the Libretto

To understand the flow and manipulation of time in the music and staging of *Doctor Atomic*, one must first examine the approach to this issue in the work's libretto. Peter Sellars's text for *Doctor Atomic* exemplifies an unconventional libretto-writing technique that fuses unrelated pre-existing texts into a cohesive narrative. As we shall see, that multiplicity of sources is directly related to the handling of time in Sellars's libretto.

Most operas rely on a single cohesive text for their libretto; this includes Adams's own works, such as another significant CNN opera, *Nixon in China*. An opera's text may be adapted from an existing literary source directly, rather than freshly crafted expressly for the purposes of being set to music; examples of the so-called *Literaturoper* include Mussorgsky's *Boris Godunov*, Debussy's *Pelléas et Mélisande*, and Janáček's *Z mrtvého domu (From the House of the Dead)*, among others. The text of an opera can also be a literary (poetic or prose) libretto created specifically to be set to music. It may be either based on a pre-existing source/s (e.g., Gounod's *Faust*; Wagner's *Ring*), or fully original (Glass's *Einstein on the Beach*).

The libretto for *Doctor Atomic*, in its combination of pre-existing texts and an original narrative, may be considered a hybrid of an original work and a *Literaturoper* of sorts. The uniqueness of the libretto is derived not from its use of a variety of sources, nor from the vast temporal disparity between those sources. Instead, what makes *Doctor Atomic*'s libretto unusual is the role of the librettist himself – Sellars acts as an arranger rather than a creator. In the text of *Doctor Atomic*, there are no original lines, and no attempt is made to alter the language of the sources. Thus, the



original materials are allowed to speak for themselves. This approach is one that Sellars and Adams have used in a work before, but not in a traditional opera.

Sellars collaborated with Adams on the libretto for three works: *El Niño* (2000), *Doctor Atomic*, and *A Flowering Tree* (2006). In their collaboration on the oratorio *El Niño*, Adams and Sellars crafted the libretto from what they called “found poetry” consisting of “a group of poems, biblical excerpts, and other texts, all having to do with the Nativity but spanning a huge historical period.”<sup>41</sup> For *El Niño*, Sellars drew from a broad range of sources including poetry from the fifteenth to the twentieth centuries, biblical texts, sermons of Martin Luther, apocryphal texts, and the chants of Hildegard von Bingen. In this sense, *El Niño* shares common heritage with Handel’s *Messiah*, a fact that Adams acknowledges: “I wanted to write a *Messiah*.”<sup>42</sup>

While the process of crafting a libretto from disparate sources is similar to what Handel’s librettist Charles Jennens created, the outcome is significantly different. Handel’s work is entirely in English, and crafted from texts that deal exclusively with the story of Christ. The libretto for *El Niño* is multi-lingual, and contains texts that concern the subject of birth in a more general sense, resulting in a modernized interpretation of the Nativity. The challenge of stitching together the numerous sources did not, however, prove especially difficult for Sellars. As *El Niño* is an oratorio rather than an opera, it does not require a seamless dramatic flow. Instead, a series of individually related parables and tales are shaped into an

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<sup>41</sup> May, in *The John Adams Reader*, 222.

<sup>42</sup> Michael Steinberg, “El Niño: A Nativity Oratorio (1999-2000),” in *The John Adams Reader*, 173.

overarching narrative structure of a more abstract and epic design, without having to worry about the work's viability as a staged spectacle.

The process used to create the libretto for *Doctor Atomic* is similar to that of *El Niño*. In a 2004 interview with Jon Else, Adams discussed his choice of librettist and the creative methodology he adopted for *Doctor Atomic*'s libretto:

So rather than going shopping around for a librettist that I didn't know, I said to Peter [Sellars], "Do you think we could actually put together a libretto from all the sources?" There is so much written about this. And then use poetry and interweave it, because we know that Oppenheimer particularly had such an ear for poetry. He loved John Donne, he loved the *Bhagavad Gita*, he loved Baudelaire. Quoted poetry all the time...

[Sellars] sort of disappeared with all these texts and what he does is that he literally cuts and pastes. I'm not talking computer cut and paste. I mean scissors and tape, and he takes these quotes... and he puts them together in this amazing sequence of quotes.

I take these and I go through them and first of all I have to do a huge winnowing job, because usually what Peter gives me is just way way more than I can [handle]... So what I did was to take that and put it more into a sort of faux poetry, faux verse.<sup>43</sup>

From this interview, it is possible to discern some of the differences in approach that Sellars and Adams took in creating the libretto for *Doctor Atomic*, as opposed to *El Niño*. Although the libretto for *El Niño* was drawn from chronologically diverse subjects, the main focus is on one topic, the Nativity, thus simplifying the selection process and assuring the inner coherence of the narrative. The libretto for *Doctor Atomic*, is similarly drawn from a wide range of sources, but they are not only disparate in regards to when they were written (as is also the case with *El Niño*), but additionally in their subject matter. Incorporated into this libretto are works of the sixteenth- and seventeenth-century poet John Donne, the twentieth-

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<sup>43</sup> Rosenberg, et al., 123-4.

century poet Muriel Rukeyser, and the nineteenth-century poet Charles Baudelaire; traditional musical texts of the Tewa tribe from the American Southwest; excerpts from the ancient Indian epic *Bhagavad Gita*; portions of declassified governmental reports on the Manhattan Project; memoirs and excerpts from interviews with the real-life counterparts of the opera's characters; and historical accounts pertaining to nuclear physics and the first atomic bomb. These materials are summarized in Table 2.1, below.

Author	Title	Usage (Title, Act, Scene, Character)
<b>Poetic and literary (in alphabetical order by author)</b>		
Baudelaire, Charles (translated by Michael Hamburger)	“A Hemisphere in a Head of Hair”	“Long Let Me Inhale” act I, scene 2, Robert Oppenheimer
Donne, John	“Batter My Heart”	“Batter My Heart,” act I, scene 3, Robert Oppenheimer
Rukeyser, Muriel	“Easter Eve 1945”	“Easter Eve,” act II, scene 1, Kitty Oppenheimer
Rukeyser, Muriel	“Ninth Elegy, The Antagonists”	“Those who most long for peace” act I, scene 2, Kitty Oppenheimer
Rukeyser, Muriel	“The Double Death”	“To keep the weakness secret” act II, scene 3, Kitty Oppenheimer
Rukeyser, Muriel	“The Motive of All of It”	“The motive of it all” act II, scene 2, Kitty & Robert Oppenheimer
Rukeyser, Muriel	“Three Sides of a Coin”	“Am I in Your Light?” act I, scene 2, Kitty Oppenheimer
Rukeyser, Muriel	“Seventh Elegy, Dream Singing Elegy”	“Dreamers wake” act II, scene 4, Kitty Oppenheimer
Traditional (translated by Herbert Joseph Spinden)	<i>Songs of the Tewa</i>	Used by Pasqualita throughout
Unknown (translated by Sw. Prabhavananda and C. Isherwood)	<i>Bhagavad Gita</i>	“At the sight of this” act II, scene 3, chorus

<b>Documentary (in alphabetical order by author)</b>		
Blumberg, Stanley A. and Louis G. Panos	<i>Edward Teller: Giant of the Golden Age of Physics</i>	Throughout for dialogue
Groves, Leslie R.	<i>Now It Can Be Told</i>	Throughout for dialogue
Hales, Peter Bacon	<i>Atomic Spaces: Living on the Manhattan Project</i>	Throughout for dialogue
Lamont, Lansing	<i>Day of Trinity</i>	Throughout for dialogue
Norris, Robert S.	<i>Racing for the Bomb</i>	Throughout for dialogue
Rhodes, Richard and Robert Serber	<i>The Los Alamos Primer; The First Lectures on How to Build an Atomic Bomb</i>	Throughout for dialogue
Smyth, Henry DeWolf	<i>Atomic Energy for Military Purposes</i>	Act I, scene 1, chorus; throughout for dialogue
Stoff, Michael B., Jonathan F. Fanton, and R. Hal Williams	<i>The Manhattan Project: A Documentary Introduction to the Atomic Age</i>	Throughout for dialogue
Szasz, Ferenc Morton	<i>The Day the Sun Rose Twice: The Story of the Trinity Site Nuclear Explosions, July 16, 1945</i>	Throughout for dialogue
Teller, Edward	<i>Memoirs: A Twentieth-Century Journey in Science and Politics</i>	Throughout for dialogue

Table 2.1: Sources and usage for the libretto of *Doctor Atomic*<sup>44</sup>

Literary texts are used in larger excerpts than documentary texts, and are therefore easier to identify than their documentary counterparts, which are marked “throughout for dialogue” and are extremely difficult to distinguish individually in

<sup>44</sup> Peter Sellars and John Adams, *Doctor Atomic* (New York, NY: Hendon Music, 2005).

the libretto. Although the process of parsing out documentary sources might yield interesting results, it is outside of the scope of this thesis. Instead, I would argue that the dichotomy between literary and documentary sources is what is truly important, and precisely because it may be more easily grasped. The manipulation of time does not occur within the documentary texts, but rather at the intersection of the literary and the documentary. To understand how Sellars and Adams have expanded chronological boundaries by altering psychological time through source material alone, we will examine three passages from the libretto: Robert Oppenheimer's act I aria "Batter My Heart," Pasqualita's act II aria "The Cloud Flower Lullaby," and Kitty Oppenheimer's act I aria "Am I in Your Light?"

"Batter My Heart"

Robert Oppenheimer's aria, "Batter My Heart," in the finale of act I, allows the audience to see his struggles with the moral implications of the Manhattan Project. We know that Oppenheimer was severely conflicted about the project as a whole. He never wavered from his commitment to creating the bomb, which he saw as his duty to the United States of America, as well as a high point in his career as a scientist. However, he also worried constantly about the massive destructive power that he was helping to unleash.

The text for “Batter My Heart” is a setting of a Holy Sonnet of the same name by John Donne (1572-1621).<sup>45</sup>

Batter my heart, three-personed God; for, you  
As yet but knock, breathe, shine, and seek to mend;  
That I may rise, and stand, o’erthrow me, and bend  
Your force, to break, blow, burn, and make me new.  
I, like an usurped town, to another due,  
Labour to admit you, but oh, to no end,  
Reason your viceroy in me, me should defend  
But is captived, and proves weak or untrue,  
Yet dearly’I love you, and would be loved fain,  
But am betrothed unto your enemy,  
Divorce me, untie, or break that knot again,  
Take me to you, imprison me, for I  
Except you enthrall me, never shall be free,  
Nor ever chaste, except you ravish me.<sup>46</sup>

The sonnet is the fourteenth of Donne’s Holy Sonnets, and was written around the time he was being ordained in the Church of England, in the early 1610s. Donne, who was born a Roman Catholic but led a secular life, saw the Church of England as a pathway to success. The Holy Sonnets, then, are descriptive of “his fear that God has rejected him” for turning his back on his religious principles.<sup>47</sup>

With this interpretation in mind, it appears that Sellars made a very astute decision to use the poem in this scene. Certainly, given what the audience knows about Robert Oppenheimer – that he holds moral doubts about the bomb, yet is committed to its success – we can gather that he, like Donne, is conflicted at this critical juncture in the opera, mere hours before the first test of the weapon. It seems equally appropriate that a poem that describes being beset by questions of morality

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<sup>45</sup> For more information on John Donne, please see John Stubbs, *John Donne: The Reformed Soul* (New York, NY: W. W. Norton, 2007).

<sup>46</sup> John Carey, ed., *John Donne: The Major Works* (Oxford: Oxford University Press, 2000), 177-8.

<sup>47</sup> *Ibid.*, xix.

about the Christian God should be applied to a situation in which Oppenheimer is morally torn by the ultimate force of destruction in the mid-twentieth century. Nevertheless, we must find some way to explain the almost 430-year gap between the poem's composition and Oppenheimer's singing of it in 1945.

It is known that Oppenheimer was an avid reader of poetry, especially that of John Donne.<sup>48</sup> The lead physicist of the Manhattan Project actually had a copy of Donne's poetry with him at the test site, which he gave the name "Trinity" from the idea of a "three-person'd God" in Donne's "Batter My Heart."<sup>49</sup> Therefore, there is a direct connection between Oppenheimer, the test site, and this particular poem, justifying the choice of its text.

Another reason for the choice of Donne may be found when the rest of the libretto is examined. Throughout *Doctor Atomic* there is a clear dichotomy between scenes that are intensely personal and those that are scientific or purely plot-bound. The narrative flow of the work is patterned after a traditional opera: time presses forward for most of the drama, and then is stopped for personal, intimate examination of a theme in an aria.

This division is furthered in *Doctor Atomic* by the introduction of multiple planes of psychological time. The scientific scenes, as I will call them from now on for easy reference, represent the "now" of stage time; that is, the scientific scenes take place in June and July of 1945, and there is no other temporal context for them. act I, scene 1, is one example of a scientific scene: scientists in the laboratory at Los Alamos discuss the moral implications and specific technical details of the bomb.

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<sup>48</sup> May, in *The John Adams Reader*, 223-4.

<sup>49</sup> Ibid.



Domestic and other more intimate scenes, on the other hand, project a sense of “timelessness” to the audience. That is, the content of these scenes could be material for thought or discussion at any time; it is not only relevant to the Manhattan Project, but to humanity in general. “Batter My Heart” is one such intimate scene, despite ostensibly being situated in the same lab as the scientific scene that precedes it. Within this dichotomy of the scientific and the intimate, a pattern arises: the sources in Table 2.1 listed as “documentary” are used for scientific scenes, while the sources identified as “poetic and literary” are utilized for intimate scenes. Sellars treats documentary sources as immutable facts that cannot transcend the boundaries of time: they are always used to represent the “now” in *Doctor Atomic*. The literary sources, in contrast, are utilized in a manner that emphasizes their metaphorical nature: exact interpretation is left to the listener. Additionally, the elevated language of the literary texts acts as a signifier to the audience that the “now” of the opera has been left behind.

Sellars, then, had to choose a literary text for the finale of act I, if he wanted Oppenheimer to contemplate the morality of the bomb – an action that, as presented in *Doctor Atomic*, is outside the verifiable realm of fact. “Batter My Heart” is a logical text choice given the scientist’s proclivity for the poetry of Donne, but also because the poem reflects the inner turmoil that Oppenheimer feels in the scene.

“Am I in Your Light?”

Kitty Oppenheimer’s first number is a setting of a portion of the Muriel Rukeyser (1913-1980) poem “Three Sides of a Coin” published in 1935.<sup>50</sup> Rukeyser drew her inspiration from a wide variety of sources, including “the physics of Willard Gibbs, the explorations of Elizabethan navigator and naturalist Thomas Harriot, and the Native American rituals described by Franz Boas.”<sup>51</sup> Kitty’s aria, “Am I in Your Light?” sets the stage for what she is to become throughout the opera: the character who is most grounded in the clock-time present of the audience’s world. As her husband contemplates the consequences of what he is doing, and the scientists are immersed in their numbers, Kitty attempts to reconcile her husband’s need to work long hours with her own need for a stable marriage. The aria is preceded by the stage direction, “Kitty and Oppie are alone in their living room. He is reading documents, oblivious to her.”<sup>52</sup> As she moves closer to him, attempting to gain his attention, she partially obscures his light source, which provides a pretext for the solo.

The words given to Kitty here are those of a deep-felt longing for the man who, on this occasion, has no time to requite her feelings. After asking if she is in Robert’s light, she tells him to continue reading while she plays with his hair. The middle section of the aria seems to indicate that Kitty is caught in a fantasy world wherein she has Robert’s full attention, but her daydreaming is suddenly interrupted by something not identified in the stage directions:

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<sup>50</sup> Anne Herzog and Janet E. Kauffman, *How Shall We Tell Each Other of the Poet?: The Life and Writing of Muriel Rukeyser* (New York, NY: Palgrave, 2001), xv.

<sup>51</sup> *Ibid.*

<sup>52</sup> Sellars, 11.

The light is thick with birds, and  
evening warns us beautifully of death.  
Slowly I bend over you, slowly your breath  
runs rhythms through my blood  
as if I said

I love you  
and you should raise your head.

listening, speaking into the covert night  
: Did someone say something?  
Love, am I in your light?

Am I?<sup>53</sup>

Kitty's desire for an escape from the daily life of the Manhattan Project, if only to spend a moment with her husband, is readily palpable in these lines. Her concern is not with morality, nor with the minutiae of the atomic bomb; instead, it is with her family. The issue is neither so specific as to be detailed with documentary sources, nor so grandly metaphorical as to be applicable to any situation at any time.

Thus, stratification within the intimate scenes arises: the grand metaphor exemplified by Robert's "Batter My Heart" and the everyday troubles of life as seen in Kitty's first aria. The problems that Kitty faces are more immediate than those of Robert, and Sellars chooses poetry to match. While "Batter My Heart" originated centuries before the "now" of *Doctor Atomic*, "Three Sides of a Coin," the source for Kitty's aria, is from a roughly congruent time period. The tone of Rukeyser's poetry is more elevated than that of the scientific scenes, but it still feels both contemporary and conversational when compared to the style of Donne's sonnet. By choosing this more immediate poetic style, Sellars portrays Kitty's issues as more related to the "now" of the opera than "Batter My Heart," although still outside the fact-driven universe of the scientific scenes.

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<sup>53</sup> Ibid. The formatting here reflects that of the libretto.

As most of Kitty's text throughout *Doctor Atomic* is drawn from Rukeyser, and follows the pattern of "Am I in Your Light," we begin to see that her character exists in a different layer of psychological time from that of her husband and his colleagues; she is neither in the "now" nor "timeless"; she is instead somewhere in between. The audience is invited to regard the scientists as grounded in a specific, documentable time, while the philosophical musings of Oppenheimer function in an epic time; they are timeless. Kitty, in contrast, is of the present, both her present and ours; her issues are simultaneously concrete to her own time and place and immediately relevant to the audience.

"Cloud Flower Lullaby"

Throughout the opera, Pasqualita, the Oppenheimers' Native American maid, is given text taken entirely from translated Tewa Indian song texts. Her "Cloud Flower Lullaby," sung to seven month-old Katherine Oppenheimer in the second scene of act II, foreshadows the test of the atomic bomb. The song acts as a sort of verbal ritornello for the scene, its four verses being interspersed between four vignettes depicting the final moments before the countdown begins. After an orchestral interlude between act II scenes 1 and 2, Pasqualita begins the first verse of the song:

In the north the cloud-flower blossoms,  
And now the lightning flashes,  
And now the thunder clashes,  
And now the rain comes down!  
*A-a-aha, a-a-aha*, my little one.<sup>54</sup>

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<sup>54</sup> Sellars, 21.

The text of the song's verses is virtually identical, with two exceptions: each iteration of the verse introduces a new cardinal direction in the order of North, West, South, East, and the final "East" verse is cut short after the second line.

Between the verses of the lullaby, Robert Wilson and Jack Hubbard discuss their fears of possible test problems, Kitty sings more poetic text, a group of scientists discuss the practical components of the coming test, and Oppenheimer and General Leslie Groves set the time for the explosion. Pasqualita's song is the linchpin around which the action of scene 2 revolves, but its text is also a thinly veiled metaphor. The "cloud flower" refers to the "mushroom cloud" of the bomb, while the sequence of events in a nuclear detonation are poetically described as a flash of lightning and a clash of thunder, representative of the blinding flash and ensuing shockwave of a nuclear explosion, respectively. Finally, the rain image in the song is a poetic description of the radioactive fallout.

Pasqualita's song thus seems a precisely tailored eyewitness account of a nuclear detonation. Yet this is not the song's original meaning. It is a traditional Tewa Indian song, placed in a modern context and imbued with an entirely different interpretation. Once again Sellars manipulates the opera's time flow through the choice of text alone. In its original context, the song cannot possibly be about an atomic weapon; it speaks of the coming of a storm, not a nuclear event. As a traditional song that addresses a common natural phenomenon, it is both timeless and immediately comprehensible to most people. But when put into the context of *Doctor Atomic* and combined with the audience's elementary knowledge of nuclear weaponry, the song foreshadows the finale of the opera.

Sellars again utilizes the metaphorical nature of poetry to bridge the gap between the epic time of the original lullaby, the “present” of the opera, and the actual present of its audience. He thus places “Cloud-Flower Lullaby” into the psychological time layer inhabited by “Batter My Heart”: the timeless. The song is immediately relatable to all three temporal settings – although its meaning alters with each shift in perspective – and thus transcends them all.

### *Time in the Libretto as a Whole*

As will be demonstrated in more detail later in the present study, the perception of time is altered more heavily in staging and music than it is in the libretto. One reason for this is the simple fact that while the text is fixed once it is written, the timing of both music and staging is fluid, changing with every performance. The different planes of psychological time set up within the stage time in the libretto therefore can make little impact of their own on the production’s clock time.

Nevertheless, the use of poetry, as opposed to the prose of documentary sources, for the personal scenes of Robert and Kitty Oppenheimer and their maid Pasqualita demonstrates Peter Sellars’s skill in manipulating the layers of time in the libretto itself. Specifically, Sellars selects the texts that indicate the “now” of stage time (June and July 1945), transcendent time (the “timeless” portion of *Doctor Atomic*), and the time of the audience’s “now.” The use of scientific reports, with their exactitude, clearly delineates the historical facts of 1945 and the days, hours, and minutes before the test of the first atomic bomb. In contrast to these reports, the poetry used for Oppenheimer and Pasqualita delineates moments of transcendent

meaning: what is the impact of the bomb on the history of our species and the ecology of our planet? And finally, the poems of Muriel Rukeyser present Kitty Oppenheimer as a sort of “everywoman” with whom a modern audience can identify on a personal level.

By making these distinctions, Sellars has given subtle clues to the audience about how each scene is to be perceived. Moments set in a specific time, such as those of the “scientific” scenes, are encouraged to be viewed as abstracted trivia. Moments of transcendent moral vision, such as those of Oppenheimer and Pasqualita, are to be received as lessons or parables. And moments of “the now,” such as Kitty’s attempts to gain her husband’s attention, are the most immediate connections for the audience to make; they are the most intimately human. In dividing the texts into the different strata of psychological time, Sellars thus alters the way in which the audience perceives time through the libretto.

## Chapter 3: Time and the Music

The best studied area of the perception and manipulation of time as it relates to music concerns the “music itself.” Little has been written on the perception of time in staged or even program music, in which additional factors of libretto, staging, or implied narrative complicate the discussion enormously, as we have seen. However, a burgeoning field has grown around the study of time in absolute music. In his book *The Semiotics of Musical Time*, Thomas Reiner addresses the increased significance of the study of musical time in recent years: “Considering that hundreds of articles and several books have been written on the topic of music time, it can be asserted that in the course of the second half of [the twentieth] century the study of time in music has become one of the focal points of musical thought.”<sup>55</sup>

Despite this wealth of information, one of the enduring problems in the study of musical time is that of definition. What is musical time? From what point can we calculate time? If we choose “now,” when is “now”? Are we to understand “now” on a purely personal level, or are we to look at a collective now? And if we examine a collective “now,” is that not based upon a conflation of individual “nows”?

There is undeniably a need to establish the boundaries within which we may debate musical time. Although it constitutes a rich subject for future research this thorny problem lies beyond the scope of the present study that concentrates on the perception of time in *Doctor Atomic*. Instead, I will examine two different methods used by John Adams to manipulate time in the score of the opera.

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<sup>55</sup> Reiner, *The Semiotics of Musical Time*, 1.



By incorporating elements of Baroque music into a decidedly contemporary piece, Adams alerts the trained ear to a deep historical connection between the compositional practices of *Doctor Atomic* and its musical predecessors. In much the same way that the libretto uses centuries-old texts to create a sense of timelessness, so, too, does the score of the opera utilize music that was composed hundreds of years before it. Additionally, Adams alters time by dramatically shifting the pacing of the drama in *Doctor Atomic*. Specifically, in the final scene of the opera, the countdown, Adams expands five minutes of “stage time” into approximately eighteen minutes of “clock time.”<sup>56</sup> In the countdown scene, then, Adams essentially reverses typical operatic procedure.

In most of *Doctor Atomic*, as in a typical opera, “stage time” flows faster than clock time. For instance, the first act of the opera covers more than two weeks of the story in fewer than ninety minutes. While time may speed up or slow down somewhat in individual sections of the score (for there is no reason to believe that the space of several weeks is averaged out over the first act), generally speaking, the push is always forward. In the final scene of *Doctor Atomic*, on the other hand, the pace slows down so much as to almost pull time backwards. Here, Adams increases the tension by slowing the timing of action inexorably. As the final minutes are, for all intents and purposes, wordless, the music is left on its own, and it projects a feeling of reluctance in approaching the detonation of the world’s first nuclear bomb. By studying Adams’s score as well as investigating its possible historical models, we can uncover the ways in which the composer manipulates the perception of time through

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<sup>56</sup> Clock-time measurements are taken from the commercially available DVD of *Doctor Atomic*. *Doctor Atomic*, DVD, directed by Peter Sellars (Waldon, Heathfield, East Sussex, UK: Opus Arte, 2008).

his music alone. Combined with the examination of the manipulation of time in the libretto (see Chapter 2), a fuller appreciation of time perception in the fully staged work can be achieved.

“An old passacaglia or chaconne”

The episode in Adams’s score that most clearly affects the flow of time in the music is Robert Oppenheimer’s aria “Batter My Heart” in the finale of act I, described by the composer as follows:

I wrote almost what feels like a trope on an old passacaglia or a chaconne. It’s emphatically in D minor; it begins with the orchestra pounding away as we hear the singer’s heart being battered. And then, suddenly, the battering stops, and very quiet strings play this very solemn D minor descending scale.<sup>57</sup>

Upon examination, the passage has none of the hallmarks of a traditional passacaglia or chaconne. Absent is the ground bass upon which the variations are built, nor is there a D minor descending scale (it is not apparent to what Adams referred when he mentioned this feature).<sup>58</sup> Yet the composer is not known for misleading his interviewers, and there must be something to what he is saying. In another interview, Adams clarifies the matter:

I have the scientist alone with his creation at the end of the act, beholding it. And my musical impetus was a very strange one. When it came to composing this, I suddenly felt the need to speak this in a kind of *archaic* music language. So we hear the orchestra bending and breaking and banging and knocking. It’s really knocking like this [rapidly pounds fist on open palm]. And then suddenly the knocking stops and *you hear what sounds like a sort of very archaic, like a*

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<sup>57</sup> John Adams, “*Atomic Sounds*,” accessed 6 March 2010; available from <[http://www.metoperafamily.org/metopera/news/dr\\_atomic/detail.aspx?id=5596](http://www.metoperafamily.org/metopera/news/dr_atomic/detail.aspx?id=5596)>; Internet.

<sup>58</sup> John Adams, *Doctor Atomic*, score (New York, NY: Hendon Music, 2005), 269-90.

*Renaissance chaconne put through a strange hall of mirrors. And then above that, Oppenheimer sings this Donne text.*<sup>59</sup>

By using a musical language inspired by Renaissance (or, more precisely, Baroque) forms, Adams creates a link between his score and its operatic predecessors, breaking down a temporal barrier set up by the audience's expectation of what a modern score should sound like. To understand how Adams accomplishes this, and what he is trying to achieve by doing so, it is necessary, first, to analyze the individual components of the aria.

“Batter My Heart” is broadly in an ABABA form, in which the A sections are a frenetic, brass-heavy ritornello for orchestra alone, while the B sections feature Oppenheimer's voice over a reduced instrumental accompaniment. (See table 3.1) Although the A and B sections are not of equal lengths, the return of musical material clearly confirms this interpretation of the aria's structure.

As Adams said, the aria is decidedly in D minor, and a D pedal point is the salient feature of the opening section (A). Twenty-four measures before the voice enters, the second violins settle on a D that is then picked up by the violas before the timpani, half of the second violins, cellos, and double basses join in. By the time it ends in the basses, the tonic pedal has been sustained continuously over 49 measures. Even after the pedal point is taken from the basses, it is continued in a more frenetic manner by the second trumpets and second and fourth horns. Overall, the D pedal is the focal point for the 58 measures immediately preceding the B section and Oppenheimer's entry. There is no implied motion, nor any sense of urgency to leave the note. The stasis seems to be a leftover from Adams's minimalist roots, as well as a

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<sup>59</sup> YouTube, “John Adams and Ara Guzelimian on Doctor Atomic,” accessed 8 March 2010; available from <<http://www.youtube.com/watch?v=N30CgR-zLzA>>. Emphasis is mine.

manipulation of time in its own right. By combining the frenetic activity in the orchestra with the extended pedal point, Adams makes the music feel both “fast” and “slow” simultaneously, emphasizing the sense of anxious entrapment inherent in the aria’s text.

<b>Section</b>	<b>Opening Measure</b>	<b>Length (in measures)</b>	<b>Instrumentation</b>	<b>Tempo</b>
A	767	35	Picc., Fls., Obs., Cls., Bsns., Cbsn., Horns, Tpts., Tbns., Timpani, Harp, Strings	Animato
B	802	24	Bsns., Horns, Tbns., Strings, Baritone (Oppenheimer)	Solennemente
A	826	10	Same as A	Animato
B	836	25	Same as B with Bass Clar.	Solennemente
B (cont. – expansion)	861	42	Added Tuba, Timpani, Harp, and chimes	Solennemente
A	903	33	Same as A	Animato

Table 3.1: Structure of “Batter My Heart,” act I, scene 3.

Additionally, the A sections have a lack of coherent melodic line; instead, Adams uses dynamic variance to create and sustain musical interest. Over rapid arpeggiated passages in the flutes and clarinets and held notes in the strings, the trumpets and trombones engage in a hocketed interplay of steady eighth notes

(focused on D), while the double-reeds and horns punctuate the wall of sound with sharply accented eighth and quarter notes.

Adams also shatters the perception of time in the A section. By using continuous rhythmic shifts of the main motive, he “erases” the bar line, and makes finding a beat nearly impossible. Despite a clearly defined time signature of 12/8 (albeit superimposed over 4/4 in the strings), rhythmic interplay in the flutes and clarinets defies any sense of metric stability. While both instruments are given an arpeggiated pattern, the flutes play a pattern of five pitches, and the clarinets a pattern of four. Even if we could find a beat in an individual instrument’s pattern (a task that would be difficult in itself due to the complexity of the scoring and the lack of precision that must necessarily accompany the pattern overlaps), there is no clear indication concerning the placement of the downbeat. If we are to assume that the beginning of the pattern is felt “on the beat,” the downbeat of a measure is only aligned with the start of the flute pattern every six measures. The clarinet pattern is more regular, but the division of a four-beat measure into sections of three subverts the potential normalcy of this pattern. The rhythmic intricacy can be seen in Figure 3.1.

Animato ♩ = 140

The image displays a musical score for four instruments: Flute 1, Flute 2, Clarinet 1 in Bb, and Clarinet 2 in Bb. The tempo is marked 'Animato' with a quarter note equal to 140 beats per minute. The dynamic is marked 'mf' (mezzo-forte). The score is in 12/8 time. The flute parts play a pattern of 5 notes, while the clarinet parts play a pattern of 4 notes. The score is divided into two systems, each with four staves. The first system shows the flute and clarinet parts playing together. The second system shows the flute and clarinet parts playing together, with some notes marked with a 'z' (zaccato).

Figure 3.1: Rhythmic interplay between the flute and clarinet parts in “Batter My Heart” (mm. 767-70). Note the flute pattern of 5 notes superimposed over the clarinet pattern of four notes, all placed in 12/8 time.

When the B section is reached, the instrumental forces are drastically cut and the tempo is reduced by half. Indeed, the aria suddenly sounds like an entirely different piece. Gone is the frenetic activity of the opening section; instead, the audience is left with a piece that sounds much like operatic declamation. It is the B section to which Adams is evidently referring when he points to a passacaglia or chaconne as his inspiration. The texture is built on multiple, overlapping suspensions, most audibly in the bassoons, but also in the low strings. Whereas the A section was

unquestionably in D minor, the B section feels tonally unstable. Instruments play D only in the service of suspension, and that note is not the focal point it was in the A section. Oppenheimer's music, too, avoids D as a tonal focus. With further analysis of the vocal line, however, the tonal structure of the B section becomes clearer. The melody is centered on pitch A with an emphasis on a flat second, thus A Phrygian.

The feeling of "archaic musical language" in this section is achieved through instrumentation: the first B section is dominated by bassoons and low strings that sound much like a traditional basso continuo. In the second B section, when the vocal line returns, other instruments are added, but they do nothing to undermine the importance of the "continuo" section. The bassoons and low strings are the instruments that provide the starkest suspensions and appear to move the B section forward harmonically, while actually taking it nowhere. Instead of directed tonal motion, the chord progression crafted by the continuo suspensions merely hovers around the key area of A while emphasizing B $\flat$ , also central to the vocal line.

Yet the Baroque references in harmony and orchestration still do not explain Adams's references to a chaconne. We may wonder, therefore, whether he had in mind a specific model in constructing "Batter My Heart" – Dido's aria, "When I am laid in earth" from Henry Purcell's *Dido and Aeneas*. The aria, commonly known as "Dido's Lament," is one of the most famous ground bass compositions in operatic history, and the similarities between it and "Batter My Heart" are striking.

At the beginning of "Dido's Lament," a ground bass is introduced in unison by the continuo: a chromatic descending tetrachord figure that spans five measures of 3/2, but begins on the third beat of the first measure. This means that for the entire

aria, the ostinato will not be synchronized with the bar lines. Additionally, the vocal line is not synchronized with the bass. There is a constant tension in the relationship between the voice and the ostinato, therefore; a conflict – as if Purcell merely overlaid Dido’s line upon the ground bass.

In much the same manner, Oppenheimer’s vocal line in “Batter My Heart” is in conflict with its accompaniment. His rhythmically chiseled melody is dominated by sixteenth/dotted-eighth figures, which lend a percussive aspect to the singing, as if Oppenheimer is spitting out the words rather than intoning them. This occurs over a very fluid instrumental background that, although never established as a ground bass, relies heavily on chromatic suspensions and a half-step motion much like the ostinato pattern in “Dido’s Lament.” Oppenheimer’s melody, like that of Dido, floats above the continuo line without ever being bound by it. Additionally, as in “Dido’s Lament,” the vocal line in “Batter My Heart” does not line up with the harmonic pattern of the accompaniment with any regularity.

Thematically, the two pieces share some traits as well. In *Doctor Atomic*, “Batter My Heart” is the first time that the audience sees Oppenheimer openly questioning his indefatigable faith in the atomic bomb:

He is seized by an immense wave of regret and remorse, and his true sensitive self suddenly just emerges out of, you know, the science and the politician. And he expresses himself through this sonnet by John Donne... in which the speaker feels so completely lost and so alienated from his God, from his sense of goodness, that he feels like he’s been taken prisoner by the devil. And he asks God to literally, physically abuse him. To break, blow, bend, burn, and make him new... And so I have the scientist alone with his creation at the end of the act, beholding it.<sup>60</sup>

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<sup>60</sup> “John Adams and Ara Guzelimian on *Doctor Atomic*.”



The text that Adams chose to set for this scene has Oppenheimer coming to terms with the consequences of a decision he has made, for better or worse. He is trapped by his decision in a prison of his own making. What happens next is out of his hands, although it is a direct result of his actions. Similarly, “When I am Laid in Earth” depicts Dido coming to terms with the consequences of a decision she made. She gave her heart to Aeneas despite the fact that she knew he would have to leave. In her lament she sings of her devastation at his departure, but she knows that her emotion has resulted from her own choices.

With these similarities, it seems possible that Adams had “Dido’s Lament” in mind when he referred to “Batter My Heart” as a “trope on an old passacaglia or chaconne.” The use of a Baroque stylistic reference is significant with respect to the perception of time in the opera. As discussed in Chapter 2, poetic text is used throughout *Doctor Atomic* to project a sense of timelessness, as opposed to the concrete and grounded time that is created by using documentary sources. By combining a poetic text with Baroque-inspired music, Adams attempts to further break down the perceptual timeframe of his audience. The music of the A sections of “Batter My Heart,” is decidedly modern: although the hocket technique utilized in the brass is hardly new, the harmonic and rhythmic structure of the A sections would have been totally alien to any time before the latter half of the 20<sup>th</sup> century. In contrast, the B sections, although harmonically “modern,” are sonically “archaic.” Whether or not they are modeled on one of the earliest known English operas, they do seem to reference the style of Baroque opera in general with their texture built on overlapping suspensions and continuo-style accompanimental pattern.

The pan-chronological meaning of Oppenheimer's poetry would likely have been enough to remove the aria from the "now" of *Doctor Atomic*. Beyond a particular modern scientist wrangling with the problems of the atomic bomb, we see a man dealing with the consequences of a Faustian bargain (*pace* Adams). The reference to opera history thus serves to heighten the disconnect between the levels of psychological time in play: the "now" of the opera as a whole, and the "timelessness" of this aria. By using a Baroque ground bass lament as a stylistic reference, Adams invites the audience to think of Oppenheimer's dilemma beyond its specific context, and instead see it as an eternal issue common to humanity.

### *The Countdown*

In addition to the local time distortions and the stylistic references to timeframes outside the scope of *Doctor Atomic*, John Adams stretches the time of the actual music within the opera itself. The most obvious example of this occurs in the second act during the countdown to the test of the bomb. At one point, Oppenheimer announces the five-minute mark before the commencement of the test. Approximately eighteen minutes of clock time later, the opera ends ambiguously, with the result of the test unknown. The methods that Adams uses to achieve the change in stage to clock time ratio are interesting in their own right, but the truly fascinating issue is the shift in the perception of time set up by the juxtaposition of the scene with the rest of the opera.

To understand how Adams's methodology in *Doctor Atomic* deviates from the norm, we must first outline the "normal" perception of time in an opera. In a traditional opera (or a play, for that matter, the rules being similar), time progresses

rapidly between scenes while slowing down to a “normal” pace in the scenes themselves; an aria or another moment of contemplation often constitutes a break in the action. As an example, we may turn again to *Dido and Aeneas* (more for the sake of familiarity than any other connection to *Doctor Atomic*). In act II of the opera, the Sorceress plots to ruin Dido by convincing Aeneas to leave Carthage (scene 1). Her plot is carried out in scene 2, where an elf disguised as Mercury commands Aeneas to sail forth and create the new Troy. In these two scenes, we see events happening at a nearly “real-time” pace. Dialogue is slowed for the sake of singing, but time progresses at approximately a one-to-one ratio of clock to stage time.

At the beginning of act III, however, preparations are being made for the Trojan fleet to depart Carthage. Somewhere between acts II and III, a considerable amount of time has elapsed unobserved. We have to assume that Aeneas would have needed to alert his captains and begin the preparations of the fleet. Time has sped forward, as less important events are omitted. This is not to be perceived as a dramaturgical lapse: all staged stories (indeed, all narratives) tend to skip certain details for the sake of expediency. Otherwise we would be left with operas that took days, weeks, and even months to perform, and even longer to write.

In the first act of *Doctor Atomic*, Adams follows the traditional approach. Specifically, a month of chronological events is condensed into 290 pages of score, for an approximate running time of 90 minutes. In terms of pacing, the first act is squarely within the confines of operatic tradition.

The second act of the opera, however, sees a departure from that tradition. Over approximately 90 minutes and 265 pages of score, the events spanning the 12

hours before the bomb is detonated take place. For the first three scenes, the traditional interpretation of operatic time continues, albeit at a significantly slower pace than in the first act. In the final scene (act II, scene 4), however, Adams reverses the expected relationship of clock time to stage time.

In measure 93 (act II, scene 4), Oppenheimer proclaims, “the shot will go off in five minutes.” From here to the end of the opera (447 measures later) the score takes approximately eighteen minutes to perform. As the clock nears zero, stage time continues to slow down, as if Adams wishes to delay the explosion of the bomb for as long as possible. Director and librettist Peter Sellars describes the countdown scene as follows: “A twenty-minute countdown takes forty minutes [to perform]. From zero minus one minute up to the explosion [it] takes four minutes.”<sup>61</sup> We can assume that Sellars’s take on the timing of the scene as used in the premiere is in line with the DVD recording of the Amsterdam production being used for reference in the present study, since he is the director for both.

The process of gradual time dilation described by Sellars can be more clearly seen in Table 3.2. Prior to the final scene in act II, one minute of clock time equals approximately 10.5 minutes of stage time; that is: for every minute that passes on an audience member’s watch, 10.5 minutes have passed for the characters. In the final scene, the same one minute of clock time now equals approximately 16.4 *seconds* of stage time. Time has been slowed by more than 97% in the final scene when compared to the first three scenes of act II.<sup>62</sup>

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<sup>61</sup> Alex Ross, “Countdown,” *The New Yorker*, 3 October 2005.

<sup>62</sup> To get these numbers, I used the following math:  
Act II, scenes 1-3 stage time: 715 minutes (a)

Scene	Time elapsed (min:sec) from act II beginning	Time until bomb	Reference to stage time
Act II, scene 1-3	0:00	12 hours	
Act II, scene 4 (m. 93)	69:10	5 minutes	“The shot will go off in five minutes!”
Act II, scene 4 (m. 344)	79:02	2 minutes	“Zero minus two minutes”
Act II scene 4 (m. 540)	87:26	0 minutes	

Table 3.2: Clock time vs. stage time in act II

Immediately before this temporal change occurs, Oppenheimer foreshadows the shift by singing, “No! There are no more minutes, no more seconds! Time has disappeared, it is eternity that reigns now!” With these words, Adams and Sellars signal that the drama is making a shift from traditional operatic time to the new approach in the closing moments of the countdown.

In terms of tempo, Adams signals the new countdown time with a gradual *rallentando* from the beginning of scene 4 to the end of the opera. Although there is a moment that builds dramatic tension through the use of an *accelerando*, the overarching temporal motion is one of slowing down from a quarter note equaling 176 beats per minute to the quarter note being 60 beats per minute (See table 3.3).

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Act II, scenes 1-3 clock time: 69.1666 minutes (b)  
Act II, scene 4 stage time: 5 minutes (c)  
Act II, scene 4 clock time: 18.266 minutes (d)  
a:b = 715:69.166 = 10.5 minutes = 630 seconds  
c:d = 5:18.266 = 0.237 minutes = 16.4 seconds  
630x=16.4 x≈.97 thus a 97% reduction

<b>Measure in Act II, scene 4</b>	♩ =
95	176
187	98
340	88
366	60
414-498	Accelerando
498	100 (“Begin rallentando”)
504	60

Table 3.3: The gradual tempo reduction in act II, scene 4

Adams literally slows down the musical time of the score to accompany the deceleration of stage time.

The final 447 measures are highly varied stylistically. As Oppenheimer announces that there are five minutes remaining, agitated musical material is introduced while the characters rush to take their places for the test. After this hurried action, the Trinity test site’s chief meteorologist, in a monotone, delivers the weather report. In comparison to the monumental event about to occur, the subject matter seems strikingly banal, and is matched by a narrow melodic range of the vocal line, limited to a fourth.

After the meteorological report, Adams enters the realm of the timeless by inserting Pasqualita’s lullaby to Katherine Oppenheimer. Psychological time briefly shifts from the “now” of the test to the “timeless” world of poetry. The musical style again reflects the time perception of the text (see Chapter 2): the instrumentation is

reduced to the string section, and for a brief moment near the end of the lullaby, quiet running triplets in the woodwinds. The pitches in the strings and winds are a minor second apart, increasing the tense atmosphere that Adams is slowly building for the countdown.

Following the announcement of “zero minus two minutes,” Adams uses another section marked “Suddenly faster” to increase the tension even more. Here, fortissimo chords are played in alternation by the strings, woodwinds, and brass. The rhythmic diversity of the earlier sections is gone; instead Adams relies on sheer volume to act as the proxy for frantic rhythmic motion. As if in response to the constant sudden shifts in tempo, the last words of the opera sung by Oppenheimer are: “Lord, these affairs are hard on the heart.”

The instrumental conclusion of the opera seems to follow the conventions of horror movie soundtracks. After a 15-measure glissando in the second violins, the music gradually accelerates, illustrating the mounting tension in the characters. As the accelerando begins, dissonant chords and intervals are quickly played *forte* and *sforzando*. B $\flat$  major and C $\sharp$  diminished chords are played simultaneously, framed by an E-G interval and an F $\sharp$ -A dyad on either side. This poly-chordal construct is perceived as a loud, dissonant cacophony. As the accelerando continues, the chords become less frequent in the score, but still maintain their frequency perceptually. Thus, while there is an indisputable accelerando in the final scene, it is not heard as such. Instead, it is heard as an abrupt shift to dissonant new material that moves faster than its surrounding material. Nevertheless, unlike previous shifts, this does not give

the impression of an altered time flow. Instead, the change is primarily in the level of tension in both the music and the stage action.

After this build-up, we are unsure when, or even whether, the bomb has actually exploded. Do the final measures represent the aftermath of the explosion, or are they the final seconds before the blast? Does the audience ever “see” the bomb explode? The libretto and score fail to answer these questions, and different productions have handled them differently. But the answers are not necessary to understand Adams final manipulation of time using the music. In fact, the ambiguity itself plays an important part in indicating the stopping of time: at this point, the music signifies the eternity referenced in Oppenheimer’s lines.

The final 50 measures of the opera incorporate sound effects (using tape), marked in the score as “Quiet Talking,” “Low Crowd Muttering,” “Infant Scream,” and “Japanese Woman.” As the opera ends, these sounds fade out, and, although “Low Crowd Muttering” is marked as the last recording to stop, the “Japanese Woman” is the last distinguishable one.

The effect is meant to refer to the Hiroshima and Nagasaki bombings, since the bomb that would be dropped on Nagasaki was the same type as the one being tested in *Doctor Atomic*. By using these recorded voices, especially that of the Japanese Woman, Adams directly links the events of *Doctor Atomic* with those of 6 and 9 August 1945. The only instruments accompanying the recorded tracks for the final 18 measures of the score are tuned gongs, harp, and celesta, all of which are allowed to ring out. They play a highly dissonant chord that is repeated in four groups of three with three beats of rest between each repetition, and four beats between



groups. Finally, the chord is played one last time and is allowed to fade out naturally as the voice of the Japanese woman continues talking. The symbolism of the number three can be linked to the name of the bomb's test site, "Trinity," and therefore to "Batter My Heart," the text from which the real Oppenheimer derived that name.

Thus, in the final scene of *Doctor Atomic*, John Adams inverts traditional operatic procedures for dealing with time perception by extending the countdown scene to more than three times its actual length in clock time. The chronological and timeless time layers merge, and the score reflects this. By juxtaposing the music used in the finale with the material that had come before, Adams is able to create a sense of timelessness in which "eternity reigns."

It might give us an additional insight into Adams's approach if we compare the final scene in *Doctor Atomic* to a similarly apocalyptic operatic finale – that of Richard Wagner's *Götterdämmerung*. A depiction of the end of the world in fire and flood, it might be the closest approximation of the idea of an atomic blast in opera history. Like the end of *Götterdämmerung*, the blast at Trinity showed the force necessary to bring about the apocalyptic power capable of ending all life on Earth. Yet Adams's depiction of this apocalyptic force is considerably different from Wagner's.

In *Götterdämmerung*, the end of the world is preceded by Siegfried's funeral march. The march proceeds in traditional operatic time: again, the idea of stopping the overarching narrative motion for a contemplative scene comes into play. This pacing is in stark contrast to the opera's finale, in which the world ends mere moments after the march. The entire flooding and burning of the world takes only a

few minutes. This is obviously more in line with operatic tradition. It is not necessary to know the details of the end of the world, and thus that end may be brought about quickly.

As we have seen, *Doctor Atomic* does exactly the opposite by dwelling on the apocalyptic event for longer than it actually took to occur. The difference between the two composers' treatment of clock time vs. stage time are enormous. In fact, using very rounded numbers, Wagner needs less clock time to illustrate an event that, had it occurred, would take almost 19 years to complete, than Adams spends on barely 5 minutes of recorded history.<sup>63</sup>

Yet, despite their obvious differences, Wagner and Adams's visions of their respective apocalypses have one major similarity: the use of recently heard music (in Wagner's case, the funeral march) to heighten the dramatic effect of the time shift. In *Götterdämmerung*, the preceding event unfolds in traditional operatic time, creating an impression of someone fast-forwarding history through the end of the world.

In *Doctor Atomic*, a similar juxtaposition is used to achieve the opposite effect. As the composer slows time down in the final scene, what is already a slow moment in the opera is perceived as being *even slower* owing to the fact that it is so starkly different from the music that immediately precedes it. Nowhere else in *Doctor Atomic* do we perceive time to flow at such a glacial pace, and this sudden shift in time perception serves to heighten immeasurably the drama of the final minutes before the test. With this combination of specific texts and musical techniques,

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<sup>63</sup> To take this example to a literal extreme, if we were to assume, for the sake of calculation, that only an area the size of modern Germany was to be flooded to a depth of one foot, we would still need approximately 345 trillion gallons of water to do the work. If the Rhine (the only river mentioned in Wagner's instructions) were to continue at its current discharge rate of 581,225 gallons per second while being dammed, it would still require 18.8 years to accomplish a flood of this magnitude.

Adams achieves a breakthrough from chronological to mythological time – a frozen moment in which Oppenheimer’s words are proven true: eternity reigns.

In his score for *Doctor Atomic*, Adams thus uses multiple techniques to manipulate his audience’s perception of time on both local and large-scale levels. When this impact is combined with the already-discussed layering of time built into the libretto, the effect can be startling, as in “Batter My Heart.” When the analysis of the manipulation of time in the score is combined with the examination of the same approach in the libretto (see Chapter 2), we achieve a deeper understanding of time perception in the work. But in order to create a fully comprehensive picture of time as it operates in *Doctor Atomic*, one must also take the opera’s staging into account. This is the subject of the following chapter.

## Chapter 4: Time in the Staging

Staging is capable of clarifying stage time not specified in the libretto or score. A production of Verdi's *Otello* may be set in the 22<sup>nd</sup> century and break the barriers of traditional time. Yet it is worth noting that Peter Sellars does not do anything so drastic. In *Doctor Atomic*, staging is used as a frame for the perception of stage time. The score and the libretto provide the painting set within.

As scholarship on the issue of music and time has been concerned almost exclusively with "music itself," no aspect of time perception has been shortchanged as much as time in the staging of dramatic music. Yet an opera, by its very nature, demands the manipulation of time in a staged setting. How does a change of scene or location shift the flow of time in an opera? How does a certain staging or directorial decision alter the perception of time for the audience? These questions, left unaddressed in scholarly discourse thus far, are particularly pertinent to an understanding of time in *Doctor Atomic*.

The terminology introduced earlier in this thesis to aid analysis of time perception in an operatic libretto and score holds also in this chapter. To reiterate, "clock time" is real time as measured by a chronometer; "stage time" is time as perceived by characters in an opera; and "psychological time" is time as it is conveyed to the audience – the intersection of "stage" and "clock" times. Therefore, the countdown scene in *Doctor Atomic* takes approximately five minutes of stage time and eighteen minutes of clock time; psychological time, by its very nature, is indeterminate but is probably longer in this scene than any other. Additionally, the commercially available DVD of *Doctor Atomic* utilized in Chapter 3 will be used in

the discussion of the opera's staging.<sup>64</sup> Although the DVD is not a recording of the premiere production, it does document a production by *Doctor Atomic*'s original director and librettist. As a result, we can legitimately argue that this recording represents the authorial point of view – something that the Metropolitan Opera production of 2008 (directed by Penny Woolcock), for instance, cannot claim.

The issue of whether the authors' point of view should be privileged is a thorny one. Each new production of *Doctor Atomic* may provide different answers to the questions posed in this chapter, thus offering valuable information on the use of time in both *Doctor Atomic* and opera in general. The decision to focus the present discussion on a single production was made to limit the scope of inquiry while still allowing us to glean valuable information that could later be applied to a more general study of time in operatic staging – of *Doctor Atomic* or the genre overall. I would also argue that while the original intent of the director and composer certainly does not exhaust the perceptual possibilities of an operatic production, their approach is well worth investigating.

To understand Sellars's directorial approach and its effects on stage, clock, and psychological times, we will examine three moments in the opera. The first is the transition between scenes 1 and 2 of act I. Here, the focus of the story shifts from the

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<sup>64</sup> There are inherent issues in using a video recording to judge a theatrical production, particularly with regards to audience perception. As Lawrence Kramer suggests in his analysis of *Salome* production videos (see his chapter, "Video as *Jugendstil*: *Salome*, Visuality, and Performance," in *Opera and Modern Culture: Wagner and Strauss* [Berkeley, CA: University of California Press, 2004] 167-189), an edited video recording offers a particular view of the events onstage that may be different from the audience's perspective due to choice of camera angles and close-ups of individual characters. In a way, the viewer is presented with the video editor's "reading" of the opera rather than the director's vision of it. However, the use of the *Doctor Atomic* DVD is both practical and valid. It is the most readily available source of information on Sellars's decisions, in respect to staging. Additionally, though close-ups may obscure important details, there is enough information left over for the viewer to mentally reconstruct the staging, décor, and other elements of the production seen by the live audience, thus allowing a fair judgment to be rendered.

“scientific” prose of the laboratory at Los Alamos to the poetry of the Oppenheimers’ home. As has been demonstrated, this is also a transition between the “now” of stage time and the timelessness of the overarching message of *Doctor Atomic*.

For the sake of comparison, I will then contrast this transitional moment with its counterpart between scenes 2 and 3 of the same act, where the plot shifts back to the scientific realm. Since Sellars handles this transition in much the same manner that he does the earlier one, a study of these similarities and one major difference will elucidate the methods that Sellars uses to guide and manipulate the opera’s temporal flow.

Finally, I will return once again to the countdown scene, scene 4 of act II, which provides the clearest example of time manipulation in Adams’s score, as observed in Chapter 3. Sellars’s approach to this scene as a stage director will demonstrate how such an open manipulation of time can be managed in performance. If *Doctor Atomic* were a film, we might expect the countdown scene to be filmed in slow motion. Sellars mimics this technique on the operatic stage and thus achieves the reduction in the ratio of stage time to clock time.

*Act I, Scene 1 and the Transition to “Am I in Your Light?”*<sup>65</sup>

The action of *Doctor Atomic* begins at the Manhattan Project laboratory in Los Alamos, New Mexico. As discussed in Chapter 2, the libretto for the opening scene is drawn from scientific reports, memoirs, and other non-fictional texts; these materials place the scene solidly in the “now” of stage time, June 1945. During the opening choral number that sets the scene for the opera, metal beams descend from

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<sup>65</sup> The final measures of scene 1 and the aria “Am I in Your Light?” (Scene 2) can be found on YouTube at <<http://www.youtube.com/watch?v=K6HDhSeUc2k>>, accessed 23 March 2010.

above, and the stage begins to take on an industrial/scientific look. The chorus is positioned upstage in uniform lines, while frenetic activity of the main characters center stage matches perpetual eighth-note motion in the music.

As the chorus concludes its introduction, the characters on stage begin to disperse. The metal beams ascend into the rafters, replaced by a blackboard covered with mathematical equations. Robert Oppenheimer and Edward Teller, dressed in suits and ties, enter from stage right. With the change in scenery and characters comes a change in lighting as well. In the opening scene, distant hills are painted on the backdrop, and the lighting is yellow tinged with orange, suggesting that the chorus and the frenetic activity are occurring outside. As the blackboard is brought into focus, a single metal-sheathed overhead light descends and casts a blue tint on everything. The majority of the light comes from offstage, but the overhead light represents the source of all of it. The starkness of the lighting, like the use of scientific prose, shifts space perception to a laboratory setting.

As Teller and Oppenheimer discuss the moral difficulties of creating the atomic bomb, the laboratory gradually fills with people, as chorus members bring in tables with what appear to be scientific instruments, models, and perhaps samples of nuclear material. Overhead lights, like that above the blackboard, descend and illuminate these new tables.

By the end of the scene, Oppenheimer has exited, and among major characters only Teller and Robert Wilson remain on stage, while a few chorus members continue to work in the background. Teller poses his final question: “Could we have started the atomic age with clean hands?” and he exits, leaving the stage to Wilson and unnamed

scientists who are discussing something at the tables. Two of the three overhead lights are withdrawn. A black backdrop descends at the rear of the stage and seems to outline dark blue hills again. Night has come to the Los Alamos laboratory.

As scene 2 begins, the light above the lab tables goes dark and the focus is shifted to a brightly lit bed in which lies a sleeping Kitty Oppenheimer. Robert Oppenheimer, dressed in pajamas, approaches, carrying documents. As Robert climbs into bed, he awakens Kitty, and she glances at him to try and get his attention. He lets out a sigh and begins reading the documents he has brought with him.

Aside from a spotlight directly on the bed from above, there is no significant light source on the stage; the effect is of a bed with a reading lamp in an otherwise dark room. Kitty and Robert are both clad in white. The bed itself is covered in a blanket with a traditional Native American pattern. As Kitty's aria begins, the audience has a clear understanding of how Sellars will handle the new scene. By focusing the light on the bed itself, the director in effect narrows the stage to a circle just slightly larger than the bed. The rest of the stage, dark as it is, effectively disappears from view, distorting any spatial references the audience may have acquired.

The method through which Sellars accomplishes the shift of timeframe from the "now" of stage time (June 1945) at the end of scene 1 to a more universal timelessness in scene 2 consists of several techniques, including the manipulation of lighting, props, and blocking. For example, in scene 1, Sellars uses a number of scientific props to make the connection between the libretto text drawn from non-fiction and the action on stage. The blackboard covered in equations and the tables



seemingly full of nuclear bomb-building material create a realistic sense of “present” in the audience. As such, the scene remains highly grounded. We are expected to associate lab work with rigorous science and truth, not emotion or poetic flights of fancy. Indeed, when some of the scientists attempt to delve into the realm of morality, Oppenheimer quickly reins them in, reminding them of the practical nature of their work. Sellars captures this grounded nature of a lab and reflects it with props devoid of sentimentality.

When the shift is made to the bedroom, the props lose their sterile quality, although they become much more minimal. The pattern of the blanket, as is seen later in *Doctor Atomic*, is easily identified with Pasqualita and represents the timeless nature of her character. Additionally, the bedroom is the most intimate space of a home. We are now in an area where emotion, rather than logic, reigns. When Kitty begins diverging from things strictly empirical, Robert does nothing to stop her – indeed, he joins her with his own poetic ruminations. The props that indicate a bedroom help to focus the audience on this shift from the empirical to the emotional, and therefore on the shift from the “now” to the timeless.

In addition to the props, the lighting plays a significant role in helping Sellars delineate the switch of timeframes. During scene 1, the primary lighting color is a blue-tinted white. This helps to enhance the look of metal lab materials.<sup>66</sup> In scene 2, the light is now bright white while blue has been relegated to the backdrop. It is as if

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<sup>66</sup> This choice of color mirrors the cinematographic choices of *Black Hawk Down* (2002), discussed above (see page 11 of the present study). Although there is no verifiable proof that Sellars even knows of the movie, what is certain is that like Ridley Scott’s war film, blue has been chosen to represent the technologically advanced settings. See: Isaac Botkin, “Color Theory for Cinematographers,” 5 March 2009, <<http://www.outside-hollywood.com/2009/03/color-theory-for-cinematographers/>>, accessed 23 March 2010.

science has been left outside the focus of attention. Through this sharp color contrast Sellars clearly separates the two scenes and further delineates the difference between their temporal settings.

Finally, Sellars's blocking for the scenes also plays an important role in our perception of time. scene 1 uses the entire stage. Action is plentiful, not only among leading characters, but the chorus and extras, as well. Scientists work at their tables, soldiers run their errands, and the major characters congregate at the blackboard. The use of the entire stage does not allow us to focus on any one character; and if the audience cannot focus entirely on a character, that character cannot open up to the audience. Through this wide-angle blocking, then, Sellars has precluded the possibility of emotion being a major factor in the scene. All that is left is the empirical, prosaic world of science.

In scene 2, the use of a spotlight on the bed and the darkness beyond forces all attention to be drawn to Robert and Kitty. Here, the audience cannot help but be confronted by the raw emotion and need that Kitty displays in "Am I in Your Light?" By keeping the blocking within the circle of light, Sellars maintains the intimate feeling throughout the entire scene.

#### *Act I Scene 2 to Scene 3 Transition*

The transition between scenes 2 and 3 of act I reverses the change of perspective from the scientific "now" to intimate timelessness in the first transition. At the end of scene 2, Robert is leaving the house to return to work, while Kitty bids him farewell, commenting, "Those who most long for peace now pour their lives on war." Her words immediately usher in the new scene at the Trinity test site. While the

setting of scene 3 is not a laboratory, it fulfills the same temporal function in *Doctor Atomic* as the Los Alamos lab of scene 1, signifying the “now.” If Sellars follows the staging techniques used to transition between scenes 1 and 2, the audience should expect a quick shift in focus from the individual to the group, from spotlight to a wide shot, and from a warm- to cold-color palette.

For the most part, Sellars fulfills our expectations, with one important exception. As Robert exits and Kitty begins her solo, she refuses to stay confined within the safety of the narrow beam of light that surrounds the bed, breaking free of it and utilizing a wider area of the stage space. Six dancers appear behind Kitty, dancing around a circle inscribed on the surface of the stage. The addition of the dancers clearly disrupts the pattern that Sellars had established since the beginning of the opera, in which emotions are delivered when the focus of the audience is exclusively on a character. Here, the dancers arguably share and even detract from the audience’s attention on Kitty.

There are two possible reasons for this change in Sellars’s methodology. First, the dancers are used as stage props. As Kitty’s solo invokes images of death, war, and guilt, she moves into the center of the dance circle with the dancers now arranged in pairs. The pattern of their movements begins to resemble the well-known Bohr model of the atom in which electrons orbit the nucleus. If the resemblance is deliberate on Sellars’s part, with the dancers as electrons and Kitty as the nucleus, then the scene foreshadows the opera’s finale. As Kitty finishes her solo, the dancers break off the pattern. The “atom” thus undergoes a symbolic fission, the process by means of which a nuclear explosion occurs.

The second reason for the inclusion of the dancers may be to create a link between the temporal layers of scenes 2 and 3. While the beginning of the scene in the bedroom is “timeless,” and without context as we might expect from a traditional operatic love duet, its final moments are more directly tied to the anxiety-ridden “now” of *Doctor Atomic*. Kitty’s solo about peace-loving men working towards war is a direct reference to the fate of her husband and other scientists engaged in the Manhattan Project. By adding the dancers, Sellars may be providing his audience with a bridge from the timeless emotion of psychological time at the beginning of the scene and towards the more urgent present of the opera’s “now.” In essence, the dancers bring us back to 1945. Both reasons for the inclusion of the dancers make sense, and it is entirely possible that Sellars may have envisioned some combination of the two. The dancers are thus a part of the “scenery” but their symbolic representation of the atom connects the emotion of Oppenheimer’s private world with the public “present” of his identity as “Doctor Atomic.”

As the scene changes after the “explosion” of the “atom,” a storm breaks. Once again, the audience witnesses a flurry of activity that overwhelms the senses. Props become more elaborate and numerous as the action shifts back to the empirical world of science, the blue-tinted lighting reappears, and the blocking of the entire scene broadens. Even when Kitty moved about during her solo, she was relatively constrained; here, Sellars utilizes the entire stage. Flashing lights, meant to mimic lightning, plunge the stage in and out of darkness. As orchestral music plays, the chorus and leading characters begin to enter the stage while the atomic bomb is wheeled out. During this action, the bomb tower, from which the bomb will be tested,

descends from the rafters. The movement of the bomb is excruciatingly slow, and it makes one acutely aware of the power that is being brought forth.

The characters handling the bomb seem tentative, as do major characters onstage who interact with it. Oppenheimer walks up to the device hesitantly, and meteorologist Frank Hubbard looks around frantically. Sellars creates a sense of rising tension that is only heightened by the appearance of General Leslie Groves, who begins barking questions about the weather and the state of the bomb. Even in what must be a fictionalized account of the final evening before the test, Sellars uses the bomb to alter our inner time flow and tune it to July 1945. In no other time or place in history would the atomic bomb be handled with such awe, and with so little confidence. Here we have completed the transition; the opera has unquestionably returned to the “now” of *Doctor Atomic*.

### Countdown

The countdown scene is a rather ambiguous portion of the score and the libretto. The final words of the libretto come nearly five minutes before the end of the opera itself; the music fades away into nothing, without any sort of final cadence. By mimicking this fade-out in his staging, Sellars leaves unanswered many questions about the timeline of the opera, and thus skews the audience’s perception of the final minutes and of time in general.

*Doctor Atomic*’s final moments come in act II, scene 4. This scene is best observed, for the purposes of this chapter, from the point at which Oppenheimer says “Zero minus two minutes” until the end of the work. In two minutes of stage time,

eight minutes and twenty-four seconds of clock time have elapsed, and the length in psychological time is even longer owing to the way Sellars shapes the scene.

To accomplish the expansion of time, in which the ratio of stage time to clock time is approximately 1 to 4.25, one might expect Sellars to utilize slow motion. Indeed, many of the other techniques that Sellars uses throughout the opera are typical cinematographic procedures, and slow motion is a standard manner of elongating time in movies. The expectation is fulfilled, but Sellars augments the technique with the freeze frame of traditional theatre, and adapts both to the operatic stage.

In the countdown scene, the stage is broken into two sections. Stage right contains the scientists and army personnel at the Trinity test site. There, consoles and scientific instruments create the atmosphere of a stereotypical action-movie firing room. Stage left contains Kitty Oppenheimer, Pasqualita, children and other maids. Kitty is bathed in a bright white light, as she was during her aria “Am I in Your Light?”

For the chorus, a modified freeze-frame technique is adopted. While the main characters are moving, most choristers are frozen in their spots, either at the scientific instruments or lying prone on the ground. One could imagine that the moments before the first nuclear blast would be filled with last-minute activity, making sure everything is operating well. Instead, the audience is presented with motionless figures. The tension level is high; we are expecting something to happen, and when nothing does time itself seems to slow to a stop. Oppenheimer has announced that there are two minutes to the explosion, yet this span of time seems to last forever.

Adding to the tension are the stage movements of main characters – severely restricted, they are limited mostly to head turns as they glance around the stage. Compared with the usual level of frenetic activity in “scientific” scenes, the restraint is contrary to expectations, and has the effect of paralyzing fear. This feeling is enhanced by the expression of Kitty Oppenheimer, who appears to be terrified. The lack of activity, and the presence of Kitty and Pasqualita, seems to merge the timeless and scientific scenes into one seamless time: the “now” has become the “timeless.” Although we are witnessing a time-specific event (the first test of the atomic bomb), the audience is urged to concentrate both on its wider historical implications, and on the universality of emotions in this moment of heightened tension.

After the last words of a major character in the opera have been sung, the chorus enters with a series of pitches on the syllable “Ahhh.” Additionally, the choristers positioned on the floor begin to crawl forward, writhing, with only their silhouettes visible against the blue-black background. Suddenly, the background lighting shifts to a dark red hue, with the chorus lit similarly from the front. All faces begin turning skyward as they look on in awe. At this point, the main characters and the chorus are moving in sync, treated without distinction. The stage is still divided between Kitty’s house and the test site, but both are lit by the same-color light for the first time, bringing them into the same temporal and emotional sphere.

If the bomb does explode in *Doctor Atomic* – and neither the libretto nor the score indicates that it does – it is in these final seconds. The red light quickly turns back to dark blue; it becomes brighter before turning to green, which then fades quickly to a very faint glow. At this point, the whole company is motionless, looking

skyward. As tuned gongs enter, the audience is left wondering whether they have just seen the long-awaited explosion. One expects a nuclear blast to be cataclysmic, but the understatement of Sellars's staging is ambiguous enough to leave room for doubt.

The impact of this ambiguity on the psychological time is that the audience is never sure when the two-minute countdown is over. It is the visual equivalent of ending a piece on a 6/4 cadential chord. The tonic seems to be coming, yet the resolution is denied, and therefore ambiguity reigns. Are the singers looking up in anticipation, or observation? Has the nuclear age begun? As the lights fade to black and the music ends, Sellars provides no answers.

By providing no marked "final event," Sellars thwarts the audience's expectation of a proper ending. This decision skews the viewer's perception of time, since, despite its shifts of chronological layers, close-ups and fade-outs, the time in *Doctor Atomic* is still seen as linear, and thus requires an Aristotelian beginning, middle, and end. If one of the elements is missing, the audience loses the ability to judge time flow. Clock, stage, and psychological times blur as *Doctor Atomic* fades to black.

### *The Impact of Staging on the Perception of Time*

Peter Sellars uses the staging of *Doctor Atomic* to underscore the shifts in time set forth in his own libretto and in John Adams's score. To accomplish this, several techniques are used repeatedly throughout the opera. Specifically, Sellars utilizes props, lighting, and blocking to inform the audience of the public nature of documentary scenes and the intimacy of poetic scenes, and therefore their temporal placement. The staging thus conveys the shifts in the layers of time much more



effectively than a recording can. Even if an audience cannot understand the text, it can still visually interpret the characteristics of the staging of poetic and prosaic scenes. The audience member may not grasp the precise meaning of these contrasts, but it would be impossible to miss them entirely.

This is one of the advantages of a staged production in aiding the manipulation of time, especially stage time. The semiotics of the (often unintelligible) text and music are not readily comprehensible to an untrained ear. If one cannot understand the text of *Doctor Atomic*, how can one be expected to grasp the idea of a temporal shift signaled by the differentiation between poetic and prosaic texts? However, staging allows audiences to make connections visually. They can see emotion on an actor's face, and they can follow the readily accessible language of cinematography in lighting choices used for emotional interpretation. As far as the perception of time is concerned, staging can help elucidate what may be obfuscated in music and text alone.

Alternatively, staging can add its own layer of time, as seen specifically in the grouping of Kitty and Pasqualita with the scientists in the finale. The combination of manipulation of time in the libretto, music, and staging is reminiscent of the unity of purpose that Wagner sought by demanding that composers write their own libretti. In *Doctor Atomic*, particularly, the effects of a director-written libretto are seen in the guise of a unified production that emphasizes salient time-related features of the libretto.

## Conclusion

When watching an operatic production, a member of the audience subjects him- or herself to the multiple layers of temporal perception. There is, obviously, the time as measured by the audience member's wristwatch: the amount of time it actually takes for an opera to be performed, or "clock time." Most operas last between one and five hours; say, three hours on average. This is a widely accepted fact, for clock time is the time layer that we most commonly experience. Less evident is a mode of time perception peculiar to opera: the time flow of the events in the story as experienced on stage, or "stage time." The experience of stage time does not come naturally to the audiences of opera, for we do not routinely experience a year, month, or even a day within a three-hour span. Finally, there is the junction of these two temporal layers: time as perceived by the characters and the audience, or "psychological time."

After the idea of characters on stage singing rather than talking, stage time is the most important trait of the operatic genre; both call for an equally willing suspension of disbelief to be effective. Furthermore, even stage time itself is stratified. For example, in an eighteenth- and nineteenth-century number opera, a recitative tends to push the plot forward while an aria lingers on a moment of contemplation or emotional expression. Even in a more fluid contemporary opera, we can observe that stage time is not uniform; it ebbs and flows at the direction of its composer.

How, then, does a composer handle and manipulate stage time? And is that process limited only to the composer's influence, or can other aspects of opera

production affect it as well? Finally, how do we perceive the relationship between clock and stage times? Is the manipulation of time on stage noticed by an operatic audience, and if so, how does that affect the audience member's own psychological clock?

John Adams's *Doctor Atomic*, premiered in October 2005, provides an excellent case study of the techniques and outcomes of the manipulation of time in opera. Through close examination of the libretto, music, and staging of the work, the present thesis has developed a more comprehensive picture of this process. By so doing, it has attempted to expand the methodology used for the study of time in absolute music and to adapt it to incorporate staged music as well. This study shows that it is not only the composer who impacts the structure of time in opera, but also the librettist and director. Specifically, the librettist determines the balance between sections of text used for plot advancement and emotional expression, as well as the general speed of the time flow in the story. Furthermore, as we have seen, the librettist may stratify the layers of stage time even further, delving into the realm of psychological time. The stage director is the most immediate link between the opera and its audience, and as such serves as a critical figure in managing the intersection of time layers as they occur on stage and in the mind of a viewer.

Time in the libretto was the logical starting point for this investigation, as an opera truly begins with its libretto. Examination of Peter Sellars's treatment of his "found" texts revealed a dichotomy between two types of text: documentary prose vs. poetry. The portions of the libretto drawn from prose sources were those that represented the "now" of stage time, June and July of 1945. These types of text

concentrated in the scenes set in scientific settings, the lab and the test site. By using documentary materials of the time, Sellars grounds the libretto in 1945 and allows the audience to observe a partially fictionalized yet immediately palpable, realistic account of actual historical events – the “newsreel” of a “CNN opera,” if you will.

Poetic texts were used for scenes that departed from the “now” of *Doctor Atomic*. In these scenes, such as act I, scene 2, and act II, scene 1, and the aria “Batter My Heart” (act I, scene 3), poetry was used to convey a sense of “timelessness” that was absent from scientific prose scenes. Here Sellars goes to great lengths to draw attention to the fact that the action in these scenes is not what actually happened, but rather musings on the moral and emotional implications of the events in the opera, which are not necessarily tied to the immediate time and place of the storyline.

At the intersection of the two layers of time lies the psychological time of *Doctor Atomic*. Here it is possible to see a breakdown of the traditional linear operatic time flow and instead glimpse the characters’ own perception of time. Just as we may lose focus on the events around us, contemplating our past or daydreaming about our future, so too do the characters of *Doctor Atomic* stray from the “now” that is 1945.

John Adams reflects this dichotomy in the music of the opera. By referencing musical styles from the Baroque era, Adams is able to heighten the timeless quality found in the text of “Batter My Heart.” The music of the aria was described by the composer as “an old passacaglia or chaconne,” and although it does not follow the strict definition of those genres, it is possible to see the relationship between Adams’s work and his model. Furthermore, by diverging from his own contemporary musical language, Adams brings the aria into focus, making us question the reasons for its

different sound. In its use of poetic text, it is removed from the “now” of *Doctor Atomic*; in his text setting, Adams relies on a musical idiom that is likewise removed from the “now” of his own composition.

Additionally, in the final scene of the opera, Adams manipulates the musical flow of time to enhance the dramatic slowdown in the other layers of operatic time. In the countdown scene, where the ratio of stage time to clock time is approximately 1 to 4.25, the opera no longer speeds forward at a pace faster than clock time itself. For this section, Adams composed music that, when juxtaposed with the immediately preceding section of the score, seems inexorably slow.

Finally, time perception in the staging of *Doctor Atomic*, as seen in a 2007 Amsterdam production, is affected by many decisions on the part of the director. By using props, blocking, lighting, and movement, Sellars gives visual clues as to a scene’s place in the dual temporality of the opera. Thus, domestic scenes are portrayed as personal, emotional, intimate, and removed from the reality of the events, while scenes in the lab and at the test site are shown to be both emotionally detached and indisputably connected to the “now” of the Manhattan Project. Sellars also uses a modified version of slow motion and freeze-frame cinematographic techniques in the countdown scene to visualize the same effect that Adams wrote into his score.

What are the wider implications of the methodology developed in the present study for future research? Since its inception, the study of time in music has been limited to the realm of absolute music, hesitant to move beyond the score. By expanding the field into the realm of opera, we confront complex and fascinating

issues that staged music presents. In moving music to the stage, and setting it to a story with a time flow of its own, additional layers of time are added to the music itself. No longer can analysis be limited to clock time alone, for stage time must be examined as well. Additionally, although it may be present in absolute music, psychological time must be reexamined in the context of opera, since it has new forces acting upon it.

I hope that the methodology set forth in this thesis will prove useful for further research in this field. Terminology, methods, and approaches of film studies, literary criticism, music cognition, and, of course, musical analysis are all essential to the study of time in staged music. In short, a more holistic and comprehensive approach to the subject is needed. Perhaps, this thesis can serve as a first step in developing such a comprehensive approach to the study of time in opera.

Additionally, it is hoped that this project opens the door to further study of *Doctor Atomic*, one of the first significant operas of the twenty-first century. The fact that this work was composed by John Adams, a leading figure in contemporary music, warrants our interest. Moreover, the opera addresses one of the most noteworthy historical events of the twentieth century, and, as such, it also deserves attention. With multiple performances and a new production, *Doctor Atomic* has proved to be popular, and it is time for scholars to decide whether and why the work merits such acclaim.

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