

# WHAT TO EXPECT FROM DOCTOR ATOMIC

## OPERA HAS ALWAYS DEALT WITH LARGER-THAN-LIFE EMOTIONS

and scenarios. But in recent decades, composers have used the power of opera to investigate society and ethical responsibility on a grander scale.

With one of the first American operas of the 21st century, composer John Adams took up just such an investigation. His *Doctor Atomic* explores a momentous episode in modern history: the invention and detonation of the first atomic bomb. The opera centers on Dr. J. Robert Oppenheimer, the brilliant physicist who oversaw the Manhattan Project, the government project to develop atomic weaponry. Scientists and soldiers were secretly stationed in Los Alamos, New Mexico, for the duration of World War II; *Doctor Atomic* focuses on the days and hours leading up to the first test of the bomb on July 16, 1945.

In his memoir *Hallelujah Junction*, the American composer writes, “The manipulation of the atom, the unleashing of that formerly inaccessible source of densely concentrated energy, was the great mythological tale of our time.” As with all mythological tales, this one has a complex and fascinating hero at its center. Not just a scientist, Oppenheimer was a supremely cultured man of literature, music, and art. He was conflicted about his creation and exquisitely aware of the potential for devastation he had a hand in designing. As Oppenheimer himself later stated of the bomb, “We knew the world would not be the same.” In fact, the scientist would eventually speak out against President Truman’s decision to use the bomb, earning the wrath of the government and triggering a dramatic fall from grace. Ultimately, however, his status was restored by President Kennedy, who awarded him with a presidential citation for his lifetime of important work.

One of the world’s leading composers, Pulitzer Prize winner John Adams has created operas inspired by the drama and moral complexities of recent history, such as President Richard M. Nixon’s trip to China (*Nixon in China*, 1987) and Leon Klinghoffer’s death at the hands of terrorists on board the *Achille Lauro* (*The Death of Klinghoffer*, 1991). Instead of writing a traditional libretto, Adams’s collaborator, Peter Sellars, created a collage out of historical documents, poetry, and spiritual texts associated with the real-life characters. The text is set to music that is powerful, beautiful, and sensual.

## THE WORK DOCTOR ATOMIC

Music by John Adams

Libretto by Peter Sellars,  
adapted from original sources

First performed on October 1, 2005,  
in San Francisco

## NEW PRODUCTION

Alan Gilbert, Conductor

Penny Woolcock, Production

Julian Crouch, Set Designer

Catherine Zuber, Costume Designer

Brian MacDevitt, Lighting Designer

Andrew Dawson, Choreographer

Leo Warner and Mark Grimmer for Fifty  
Nine Productions, Video Designers

Mark Grey, Sound Designer

## STARRING

Gerard Finley (J. Robert Oppenheimer)

Sasha Cooke (Kitty Oppenheimer)

Richard Paul Fink (Edward Teller)

Eric Owens (General Leslie Groves)

Co-production with English National Opera  
Commissioned by San Francisco Opera

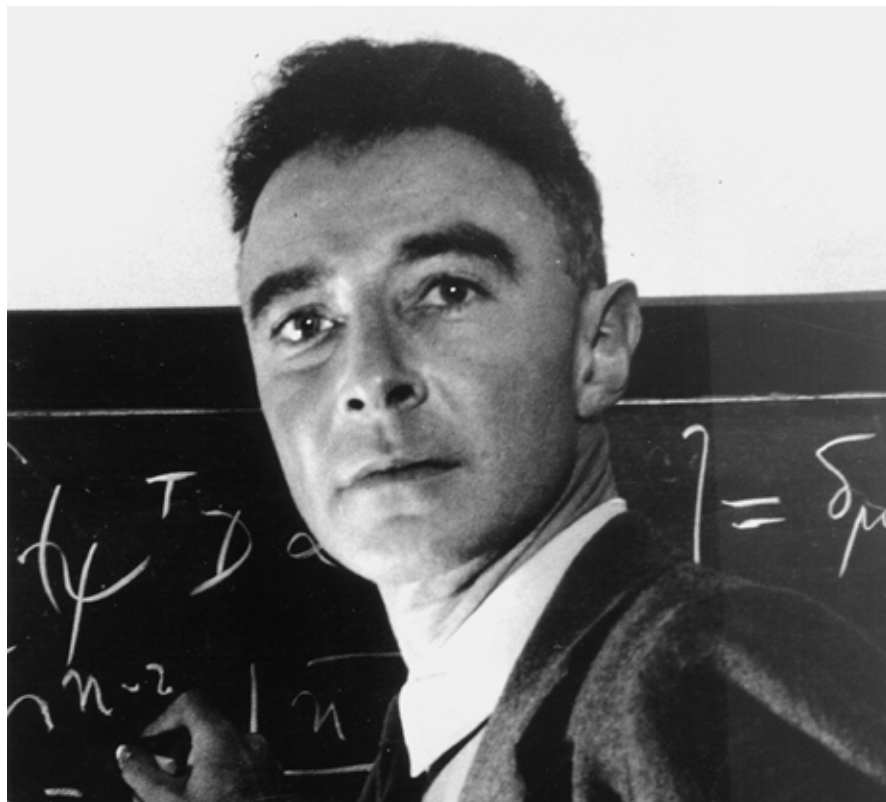
This production of *Doctor Atomic*  
was made possible by a generous gift  
from Agnes Varis and Karl Leichtman.

Additional funding for  
*Doctor Atomic* programs comes  
from the Alfred P. Sloan Foundation.

For videos, feature articles, and more  
information about *Doctor Atomic*, visit  
[www.metopera.org/doctoratomic](http://www.metopera.org/doctoratomic).



The head of the Manhattan Project's Los Alamos Laboratory, physicist J. Robert Oppenheimer is widely known as the "father of the atomic bomb." His early work on bomb physics and his gifts as an organizer led to his appointment as the Lab's first director. Although he was at the center of the development of a fearsome weapon, Oppenheimer was also a highly cultivated intellectual who found nourishment in the *Bhagavad Gita* and the poetry of John Donne and Baudelaire. The complexity of the character made him a fascinating subject for John Adams and his collaborator Peter Sellars. (Photos: at left, © Halsman Estate; at right, courtesy Emilio Segrè Visual Archives)



This guide is designed to help your students engage with *Doctor Atomic* as a contemporary work of art, populated by complex characters and driven by the ethical and scientific issues they face. By paying close attention to the text, the music, and the creative choices posed by this work, the guide seeks to prompt students' curiosity about contemporary music and the opera *Doctor Atomic*, its historical settings and characters, and the Met's new production.

## TOPICS FOR DISCUSSION

### **EVEN MORE THAN 60 YEARS AFTER THE FIRST ATOMIC TEST,**

the events depicted in *Doctor Atomic* remain extraordinarily timely. The decision to create, test, and ultimately use this new weapon caused tremendous conflict and uncertainty among the scientists and military personnel at the center of the story. The implications of the Trinity test continue to haunt us, and the moral issues about nuclear weaponry are still hotly debated.

Engage your students in a conversation about the issues at stake in *Doctor Atomic*. For example:

- Who was opposed to the bomb and why?
- What were the questions raised at Los Alamos based on what the scientists and government leaders seemed to know at the time?

Stage mock debates based on students' responses to the questions above. Have your students represent different sides of the argument, as if they were characters in the opera.

After the mock debate, look at the questions surrounding *Doctor Atomic* and discuss if and how they have been resolved.

- What are the major moral and philosophical questions raised by this momentous event in history? Ask students to describe how things have changed in the world since 1945. Do the issues raised in *Doctor Atomic* still affect us? What have we learned? Which of the questions are still relevant today?

The discussion may lead to a broad inquiry about science and its impact on society. Below are some questions to further the discussion.

- Can science be a neutral pursuit?
- Can it be detached from the moral implications of its results?
- What are other examples of scientific pursuits that raise these questions (e.g. cloning, stem cell research)?

Have your students bring in newspaper clippings on current events and explain how they connect to the world of *Doctor Atomic*.

Your students can explore the controversial themes of the opera as they are relevant today in the follow-up exercise to the Classroom Activity, *Oppenheimer's Voices* (page 17) and the Post-Show Discussion on page 36.

## A GUIDE TO DOCTOR ATOMIC

The guide includes four types of activities:

- **CLASSROOM ACTIVITIES:** two full-length activities, designed to support your ongoing curriculum
- **MUSICAL HIGHLIGHTS:** opportunities to focus briefly on excerpts from *Doctor Atomic* to cultivate familiarity with the work
- **PERFORMANCE ACTIVITIES:** to be used during *The Met: Live in HD* transmission, calling attention to special aspects of this production (reproducible activity sheets can be found on the last two pages of this guide)
- **POST-SHOW DISCUSSION:** a post-transmission activity, integrating the *Live in HD* experience into students' wider views of the performing arts

### THE ACTIVITIES IN THIS GUIDE ADDRESS SEVERAL ASPECTS of *Doctor Atomic*:

- The unusual documentary nature of its libretto
- Aspects of contemporary music as represented in its score
- The impulse to depict a significant historical event through opera
- Creative decisions made by the composer, the librettist, and the artists of the Metropolitan Opera in this particular production

The guide seeks not only to acquaint students with *Doctor Atomic*, but also to encourage them to think more broadly about opera—and the performing arts in general—as a means of personal and philosophical expression. Little prior knowledge is required for the activities.

Set model for *Doctor Atomic*  
(Photo: Metropolitan Opera  
Technical Department)



# THE STORY

## ACT I. THE MANHATTAN PROJECT LABORATORY, LOS ALAMOS,

*New Mexico. June, 1945.* Physicist J. Robert Oppenheimer and Project Commander General Leslie Groves lead the development of the first atomic bomb, which nears completion. Since the surrender of Germany, many of the scientists have begun to question the necessity of using the bomb against Japan. Young physicists Edward Teller and Robert Wilson are especially troubled by the moral and social implications and try to convince the others to sign a petition to President Truman. Oppenheimer admonishes them. He has just returned from Washington and describes the decision to bomb Japanese cities, focusing on civilian targets.

*The Oppenheimers' house in Los Alamos.* Oppenheimer answers the concerned questions of his wife, Kitty, with verses from one of their favorite poets, Baudelaire. The two share a brief moment of love and intimacy. Left alone, Kitty thinks about the contradictions of peace, war, and love.

*The "Trinity" test site near Alamogordo, New Mexico. July 15, 1945.* It is the night of the test of the first atomic bomb. A massive electrical storm is lashing the test site, and the bomb, partially armed and hoisted on a high tower, is in danger of being struck by lightning. Chief meteorologist Frank Hubbard warns the frustrated General Groves that attempting the test in these conditions is extremely dangerous. Captain Nolan of the Army Medical Corps tries to impress upon Groves the toxic properties of radioactive fallout, which are only just beginning to be understood. As panic starts to take hold, the general dismisses all staff in order to confer with Oppenheimer alone. The physicist gently humors Groves about his chronic weight problems, and Groves leaves to get some sleep. Oppenheimer faces his own personal crisis alone in the desert, recalling the sonnet by John Donne that inspired him to name the test site "Trinity": "Batter my heart, three-person'd God."

ACT II. *The Oppenheimers' house.* Two hundred miles from the test site, Kitty and her Indian maid, Pasqualita, watch the night sky for signs of the explosion. Kitty reflects on war, death, and the resurrection of the spirit.

Orchestral Interlude. Rain over the Sangre de Cristo Mountains. Seven-month-old Katherine Oppenheimer awakens, crying. Pasqualita comforts her, singing a lullaby.

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**FUN FACT:** John Adams has cited the 20th-century composer John Cage as "opening his ears" by proposing that music is fundamentally not about feeling, but about "acoustical sound"—the physiological response of our ears to the specific movements of air.



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**FUN FACT:** On the night before the first atomic test, J. Robert Oppenheimer had a book of poems by Charles Baudelaire in his pocket. Excerpts from Baudelaire's work and that of other poets have been incorporated into Peter Sellars's libretto.

*The test site. Midnight, July 16, 1945.* All personnel have been cleared from the blast area. Wilson and Frank Hubbard are at the bomb tower, making last-minute measurements ordered by Groves. Both are extremely worried about working on the bomb in the middle of an electrical storm. At the observation bunker, the scientists discuss the possibility that the detonation might set off an uncontrolled chain reaction ending in the destruction of the earth. Oppenheimer assures them that such a result is not possible. With the rain still coming down, Groves decides to take a chance on the storm's passing, and Oppenheimer orders everybody to prepare for the test shot at 5:30 A.M.

While Groves is plagued by fears of sabotage, Oppenheimer is in a state of extreme nervous exhaustion. Everyone waits, each absorbed in his own thoughts. The men make bets, trying to guess the yield of the bomb. Oppenheimer surprises everyone by his pessimistic prediction, and even Groves is unable to conceal his waning faith. Suddenly, the night sky is filled with a terrifying vision of Vishnu as described in the *Bhagavad Gita*: "At the sight of this, your shape stupendous, full of mouths and eyes ... terrible with fangs ... when I see you, Vishnu ... with your mouths agape and flame-eyes staring—all my peace is gone; my heart is troubled." At zero minus ten minutes, a warning rocket is fired and a siren sounds. Then the storm breaks, and the sky over Ground Zero suddenly clears. Another warning rocket goes off, and at zero minus 60 seconds, a third one signals the final countdown. Base Camp resembles an outpost of the dead: rows of scientists and Army personnel lying facedown in shallow ditches. There is no movement or whisper of activity, only the rhythmic countdown over the loudspeaker. At zero minus 45 seconds, an engineer flips the switch for the automatic timer. The triggering circuits begin to fire. "Zero minus one." There is an eerie silence.

## AN INTERVIEW WITH THE COMPOSER

**You count *Doctor Atomic* among your most significant achievements.**

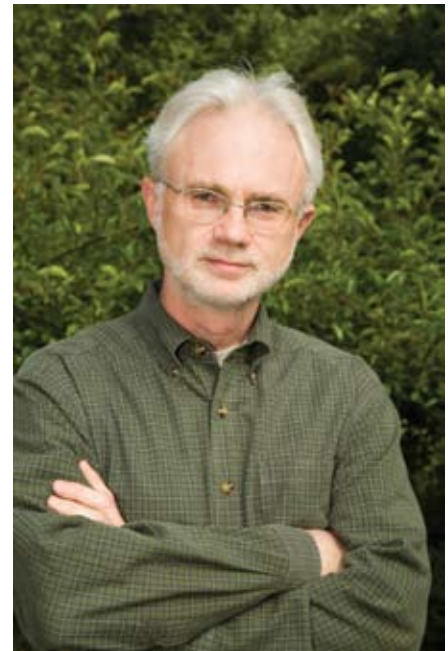
**Why is that?** What gives me the most satisfaction are those pieces that weave American cultural and historical material into a work of music drama, using a few choice symbols to summon up the essence of America's collective psyche. The atomic bomb is the most emphatic symbol expressing the American predicament in the world at this moment. It expresses the triumph of technological and scientific prowess. At the same time, the lamentable fact that we are the only nation in the world that has used the atomic bomb is a moral burden that we have to carry. The manipulation of the atom, the unleashing of that formerly inaccessible source of densely concentrated energy, is *the* great mythological tale of our time.

**Unlike many opera composers who remain specialists in the art form, you have an extraordinary ability to move back and forth between the stage and the concert hall. You even wrote a *Doctor Atomic* Symphony.**

One thing I love about writing for the stage is that I'm prodded to devise new ways to represent something musically. For example, the landing of Air Force One on the runway in Beijing [in *Nixon in China*], or what it must have felt like to be on the floor of the New Mexico desert in the incredibly tense moments before the world's first nuclear bomb went off—these are images that force the composer to go beyond his normal way of doing things. And when I return to instrumental music after these experiences, I find that it has profoundly enriched my musical vocabulary. *Fearful Symmetries* is a work that used the idiom I had developed in *Nixon*, and it ended up becoming a successful dance piece and my most choreographed work. My Chamber Symphony and Violin Concerto could not have existed had it not been for the kind of new chromatic writing that I developed in *The Death of Klinghoffer*. I couldn't imagine my musical language being where it is now, in 2008, were it not for the experiences I've had writing for the stage.

**Your most recent opera is *A Flowering Tree*, from 2006. How long before you tend to want to start a new opera?** I've already got the itch.

Usually after I finish an opera I say, That's it for a long time, and then a year or two later I find I get the itch. I haven't found the perfect story yet, but my antennae are out. Sometimes other people suggest a story too,



John Adams's fifth opera, *Doctor Atomic*, premiered in 2005. (Photo: Margaretta Mitchell)

as Pamela Rosenberg [former general director of San Francisco Opera] did for *Doctor Atomic*. I never would have thought of Oppenheimer as a subject on my own.

**What makes it so difficult to land on the right subject matter?** To find a story that is compact—sort of like a uranium atom—it has to be capable of holding an enormous amount of energy in a small package. That’s why novels are often failures when it comes to being adapted to the stage. Each one of my operas has a unique dramatic conceit.

**Why did you decide to write your memoirs?** I just started writing—actually during the most intense stage of working on *Doctor Atomic* (go figure!)—and found that writing prose was equally as satisfying to me (and a lot easier) than writing notes. The good feedback I was getting from readers of *Hallelujah Junction* stimulated me to write the libretto for my next opera, *A Flowering Tree*.

**What has been most satisfying for you about the course *Doctor Atomic* has taken since its world premiere in 2005?** I was very happy that in both San Francisco and Chicago the productions seemed to provide almost an electrical charge to the cultural community, in the sense that intellectual people from all different walks of life came to see it because they were curious about a work of art that dealt with these matters. Some people told me they had gone back to see it four or five times. It was also a successful draw in Amsterdam at the Netherlands Opera. That’s very encouraging, because it’s a serious work and it’s daunting on many levels. At the Met, a lot of intelligent and thoughtful people will see it, and I’m very pleased about that.



# CLASSROOM ACTIVITY

## Oppenheimer’s Voices: A Close Look at the Influence of World Literature

### THE LIBRETTO OF DOCTOR ATOMIC IS VERY UNUSUAL.

Instead of writing dialogue, Peter Sellars arranged excerpts from historical documents about the development of the atomic bomb and from works of literature associated with the characters’ real-life models. For instance, most of what audiences hear from Kitty Oppenheimer, the protagonist’s wife, is poetry written by Muriel Rukeyser, an American poet who was about the same age and shared many of the views and beliefs of the historical Kitty (see the Musical Highlight, *Song of the Eternal Feminine*). Much of Edward Teller’s dialogue is drawn from that scientist’s memoirs.

In the case of “Doctor Atomic” himself, J. Robert Oppenheimer, Sellars draws primarily from three vastly different sources, all known to have been familiar to the physicist: the 19th-century French poet Charles Baudelaire, the 17th-century English poet John Donne, and the Hindu sacred text called the *Bhagavad Gita*. In this activity, students will take a close look at texts sung by the character of Oppenheimer, both to consider this “documentary” approach to libretto-writing and to understand how thoughts from such disparate sources add up to the character as Sellars and John Adams understand him. They will:

- Listen to an excerpt from *Doctor Atomic* exemplifying the documentary libretto
- Read several “conversations” and “soliloquies” from the opera, in which Oppenheimer uses quotations from world literature to express his views
- Interpret the selections from poetry and spiritual literature to develop their own descriptions of Oppenheimer
- Become acquainted with the use and style of language in *Doctor Atomic* as preparation for *The Met: Live in HD* transmission

### STEPS

In most operas, librettists make up the words their characters will say, the arias that will express their inner feelings, and the conversations they have with one another. *Doctor Atomic* is different. Here, the characters all speak in quotations taken from historical documents, interview transcripts, and world literature. In this activity, students will take a close look at:

- The use of these quotations in *Doctor Atomic*

### IN PREPARATION

For this activity, each student will need photocopies of the printed resources for the activity, found on pages 38 through 44 of this guide.

You will also need the accompanying recording of selections from *Doctor Atomic*.

### CURRICULUM CONNECTIONS

Language Arts/Literature and History

### LEARNING OBJECTIVES

- To explore the construction of a “documentary” libretto
- To consider the use of indirect texts in developing a character
- To examine poetic language as a means of communicating ideas and emotion
- To become acquainted with several works of world literature
- To support understanding of the unique approach to dialogue in *Doctor Atomic*

## Oppenheimer's Voices: A Close Look at the Influence of World Literature

- The use of several specific quotations sung in the opera by J. Robert Oppenheimer
- The way different quotations work together to help create the character of Oppenheimer

**Step 1:** If your class has not already discussed them, introduce the basic circumstances and plot of *Doctor Atomic*. Be sure they understand that the characters are all based on actual people who lived in the middle of the 20th century and were present one way or another at the invention of the atomic bomb. Given that these characters are real, ask your students how they might go about putting words in the characters' mouths if they were writing a libretto for an opera about the invention of the bomb. Would they think up characters' traits and styles of speech, then write words to match? Would different characters use different types of language? Would they try to quote actual sentences spoken by the characters' real-life models?

**Step 2:** Pass out the resource, Text A, on page 38. What do your students make of this statement? How would they describe the language? Poetic? Scientific? Mysterious? Dry? What role could they imagine it might have in an opera? Would anyone actually say these words in real life?

**Step 3:** Play **Track 1**. This is John Adams's setting for this statement—the beginning of *Doctor Atomic*. Do your students think it works? Does the music affect their feelings about the statement? Does it affect the meaning? Does it make it sound less technical? More thoughtful? What do they think of this as a way to set the scene for an opera? What kind of opera would they expect?

Explain that this is an example of the approach Peter Sellars took in compiling the documentary libretto for *Doctor Atomic*: using actual, existing texts. Your students may be interested in commenting on this approach. Do they think it might make the opera “more true”? What advantages might it have over made-up dialogue? Is it a way of “cheating” the audience? Do any other art forms use a similar method (for instance, sampling in hip-hop or collage in graphic arts)? In particular, where might individual characters' words be found?

Students may come up with a variety of ideas, including interviews, memoirs, autobiographies, and letters. Affirm that all the ideas are good ones, and note that all were used in the *Doctor Atomic* libretto. One problem with this method is that J. Robert Oppenheimer, the main character of the opera and the leader of the team that invented the bomb, never wrote a memoir or autobiography, and the composer chose not to quote directly from Oppenheimer's letters. Instead, Oppenheimer speaks almost exclusively in the words of three texts he is known to have read and loved: the poetry of Charles Baudelaire and John Donne, and the Hindu spiritual text, the *Bhagavad Gita*.

If you have time, you may want students to go online or to the library and research these three sources, then come back to class with oral reports. Otherwise, feel free to introduce the sources as follows:

**Charles Baudelaire:** A French poet of the mid-19th century, Baudelaire is best known for a volume of poems called the *Flowers of Evil*, and for *Paris Spleen*, the volume of prose poems from which much of Oppenheimer's lyrics are drawn. Baudelaire was known for writing eloquently and fearlessly about such topics as beauty, sexuality, drug use, sensation, despair, and death—the kinds of topics common nowadays in rock music.

**John Donne:** Donne was one of the “metaphysical” poets of late 16th- and early 17th-century England, men who wrote about the soul, about beauty, about religious and philosophical matters. In particular, one of Donne's “Holy Sonnets” refers to a “three-person'd God”—the Christian notion of God as a “trinity” consisting of the Father in Heaven, the Son Jesus Christ, and the Holy Spirit. Oppenheimer would name the atomic test site in New Mexico “Trinity”; he would later recall that at the time, he had been thinking of this sonnet.

***Bhagavad Gita*:** In this fundamental Hindu philosophical text, whose title means “song of God,” the god Krishna and the mortal hero Arjuna have a discussion on a battlefield just before the beginning of a war. They talk of right behavior, morality, and the nature of all being. Sometime after the atomic test, Oppenheimer recalled that a line from the *Bhagavad Gita* had come to mind at the precise moment of the explosion.

This activity focuses primarily on Baudelaire and the *Bhagavad Gita*. Donne's sonnet is examined in the Musical Highlight, *The Origin of Trinity*.

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**FUN FACT:** The title of *Doctor Atomic* hints at multiple connotations. Adams notes that he wanted something with a sci-fi vibe that had “a more populist ring to it, as if it were a story title out of *Life* magazine, circa 1950.”

## Oppenheimer's Voices: A Close Look at the Influence of World Literature



Gerald Finley as J. Robert Oppenheimer  
(Photo: Nick Heavican/Metropolitan Opera;  
Background: Cornelia Parker's "Einstein's  
Abstracts," courtesy of the artist.)

Students may want to discuss their thinking about the choice of these three sources: if possible, defer such discussion until after the class has taken a look at some of the texts quoted in the *Doctor Atomic* libretto.

### Step 4: Discussing the Texts

One at a time, distribute the remaining resource texts (found on pages 39 through 44). Have the class read and discuss the texts, then decide what they think this particular text has to say about Oppenheimer. Keep track of students' thoughts on the chalkboard or a large sheet of paper.

Here are some discussion points for each of the texts:

Texts B and C: Edward Teller and J. Robert Oppenheimer/Oppenheimer's Soliloquy

Teller was younger than Oppenheimer. Just as Oppenheimer was known as the father of the atomic bomb, Teller would go on to become the father of the hydrogen bomb—a much more powerful weapon developed early in the Cold War, in the 1950s. Oppenheimer and Teller had a contentious relationship throughout their lives.

*Doctor Atomic* begins with a quotation from Teller in which he directly, almost coldly, accepts responsibility for everything bad that can be said about atomic (and, later, nuclear) warfare. But what do students make of the Baudelaire quotation selected for Oppenheimer?

First, what does Baudelaire say?

- What would it mean to “lose a visiting card?”
- What could it mean that Baudelaire sees his own soul as so useless, embarrassing, even trivial, that losing it all together would be no big deal?
- What does “losing one's soul” mean to your students?

Now, what might the use of this bit of prose poetry mean to the character of Oppenheimer?

- Do students think he literally means these words?
- Does he simply not care about the good or evil of the work he's doing?
- Or is he somehow responding to Teller's straightforward, almost proud claim of having a soiled conscience?
- Compare Oppenheimer's view to Teller's. Which do students prefer?
- Why would Oppenheimer quote the French poet rather than simply respond in his own words?

- What does this quotation say about the character as Peter Sellars and John Adams understand him?

Have students take a look at the line from John Donne. Oppenheimer sings the Baudelaire quotation at the beginning of Act I; Donne's words appear at the end of Act I. First of all, what do they literally mean? (The speaker loves God and yearns for God's love, but for some reason believes himself to have allied with the Devil.)

What could Oppenheimer be referring to? (His role in developing a technology of mass destruction)

- What do students think this quotation says about Oppenheimer's view of his own soul?
- In this light, how does Oppenheimer compare to Teller?
- Why would Sellars and Adams include both of these sentiments in characterizing Oppenheimer? Do they see him as ambivalent? Are the creators of *Doctor Atomic* ambivalent about him?

#### Text D: General Leslie Groves and Oppenheimer

Groves was the Army general who directed the Manhattan Project. It was his responsibility to keep the effort moving according not just to an appropriate scientific pace, but according to the needs of the U.S. military and government. In this scene, as elsewhere in *Doctor Atomic*, he represents the attitude that nothing—not even the weather—should be allowed to slow or obstruct the team's progress. How do your students think a meteorologist might respond to his insistence on a “firm prediction” about a storm the night of the scheduled atomic test?

How do they interpret Oppenheimer's reaction? First of all, take a look at the quotation itself.

- Given that the *Bhagavad Gita* is a discussion between the god Krishna and the warrior hero Arjuna, who is speaking here? (Krishna)
- What does the statement mean? What does it say about the way things unfold in the world?
- What does it say about the ability of people to affect, much less control, events?
- Do your students accept Krishna's view?



## Oppenheimer's Voices: A Close Look at the Influence of World Literature



Catherine Zuber's costume designs for the  
Los Alamos lab technicians

Why would Oppenheimer think of these words at this moment?

- Is there more to it than the coincidental reference to “letting loose the rain” (in the face of an actual storm that night)?
- Is he making a statement about power and the possibility of control?
- Why does he include the line that begins “Arjuna”? Is this aimed at General Groves, directly or indirectly?
- If so, what could Oppenheimer mean by it? Does he sympathize with Groves? Is he making fun of him?
- In choosing this quotation, what are Adams and Sellars saying about Oppenheimer's understanding of his role as civilian leader of the project, in light of General Groves's role as military leader?

Text E: Captain James Nolan and Oppenheimer

Nolan was the Army's chief medical officer for the Manhattan Project. Though a soldier, his perspective is different from that of General Groves. Here he is reporting on unintended consequences of the work with atomic energy—the risk of radiation poisoning that we now understand to be one outcome of a nuclear explosion.

Oppenheimer again responds with a quotation from the *Bhagavad Gita*—but the message is quite different here.

- If the previous quotation was about divine and human power, what do students think this one is about? (Transience of sensory experience, uncomplaining acceptance of pain)
- What is meant by “never lasting long”? How does that respond to Nolan’s concern?
- What does the quotation say about human experience?
- How do you think a medical doctor might respond to this point of view?
- Is Oppenheimer brushing Nolan’s concerns away?
- Why might a person in his position think of a statement like this one? Do students think he is entirely callous, without feeling?
- What might Adams and Sellars be telling us about their character’s attitude toward his mission on the bomb project? As a scientist? As a human being?

#### Text F: Nolan, Groves, and Oppenheimer

This text appears a few seconds after Text E. We hear Groves’s response to Nolan’s concern and Nolan’s refusal to back down. Groves makes a kind of dark joke: in referring to a “Hearst propagandist,” he refers to a newspaper publisher who opposed U.S. participation in World War II; he’s saying, in a sense, “Are you working for the enemy?”

In this case, Oppenheimer seems to be responding to neither Nolan nor Groves. Rather, his quotation from the *Bhagavad Gita* sounds like a comment about their conversation. After students discuss the literal meaning of the quotation (a defense of calm equanimity in the face of turmoil), they should again think about why Oppenheimer would bring this up at this point.

- Is he just being a wise guy?
- Is he describing himself? Is he bragging?
- Do Adams and Sellars mean to depict him as a person without feelings? What else might they be up to here?



Oppenheimer with General Groves at the “Trinity” test site (Photo: Emilio Segrè Visual Archives)

## Oppenheimer's Voices: A Close Look at the Influence of World Literature

### Text G: Counting Down to the Blast

The last text comes from the long, tense section of the opera representing the countdown to the first atomic explosion. At five minutes before the blast, Oppenheimer recites these words from another Baudelaire prose poem.

In its original context, this poem describes a moment of intense sensual pleasure. Baudelaire's "benevolent demon" might be an alcoholic beverage, a narcotic, a sexual partner, the designer of a house of pleasure—any force that creates an unusually intense sensory experience. Clearly that is not Oppenheimer's experience at this point in the opera, waiting on tenterhooks for the first test of a project he's been immersed in for years, not knowing whether the bomb will detonate successfully, nor how powerful it might be.

- Why might he be recalling a poem about the sensation of leaping from "Time" into "Eternity"?

The mushroom cloud from the explosion of the first atomic bomb at the "Trinity" test site  
(Photo: Emilio Segrè Visual Archives)



- What might Sellars and Adams intend, knowing (unlike their character) how things will turn out?
- Why would they turn back at this point from the spiritually transcendent, almost disinterested *Bhagavad Gita* to the lusty intoxicated Baudelaire?
- What do they mean to tell us about Oppenheimer here?
- How do your students think they themselves might feel at such a time?

**Step 5:** By now, your students may well have pulled together a picture of Oppenheimer as depicted in *Doctor Atomic*. If not, this would be a good time to turn to the list you’ve been keeping and have them try and summarize the character that these quotations create.

This is also the appropriate time to reconsider the whole idea of a documentary libretto. What do your students think of the method now?

Peter Sellars has spoken of opera’s ability to present the inner lives of its characters. The traditional tool for this is the soliloquy.

- Does *Doctor Atomic*’s use of quotations have a similar effect, layering
  - the meaning of the quotation,
  - the character’s “choice” of that quotation, and
  - the librettist’s choice of the quotation to depict a state of mind in the character?
- What is gained from hearing Oppenheimer speak in quotations that might have been lost if Sellars had simply written dialogue for him? What seems to be lost?
- What do students think of the three voices chosen for this character—Baudelaire, Donne, and the *Bhagavad Gita*. Do they seem appropriate? Fair?
- Are there more modern voices that might have been quoted to convey Oppenheimer’s inner life?

**FOLLOW-UP:** For homework, students might like to create their own “documentary” art. They might “write” an essay by assembling sentences and paragraphs clipped from newspapers and magazines or downloaded from the Internet. They might make a visual collage, using borrowed images the same way. In either case, the objective would be to create an entirely new work of art, communicating the student’s own viewpoint, idea, or feelings to a reader or viewer.

## CLASSROOM ACTIVITY

### Atomic Sounds: A Close Look at Elements of Contemporary Music

#### IN PREPARATION

For this activity, each student will need photocopies of the printed resources for the activity, found on pages 45 and 46 of this guide.

You will also need the accompanying recording of selections from *Doctor Atomic*.

#### CURRICULUM CONNECTIONS

Music, Language Arts, and Analytic Thinking

#### LEARNING OBJECTIVES

- To investigate some of the elements of contemporary classical music
- To consider philosophical issues in the distinction between “music,” “sound,” and “noise”
- To become acquainted with the musical vocabulary of *Doctor Atomic* in advance of *The Met: Live in HD* transmission

#### MUCH OF THE HISTORY OF WORLD CULTURE HAS BEEN

driven by technology, and music is no exception. The piano was not invented until the early 18th century. The trumpet we know appeared a century later, when valves were added to a horn. The 20th century saw the invention of recorded, replayable music; electrical sound amplification; electric versions of older instruments, such as organs and guitars; and entirely new electronic instruments including synthesizers and samplers. As a 21st-century composer, John Adams took advantage of all these technological possibilities in his opera about the transformative technology of atomic energy, creating sounds that can be both exciting and challenging for new listeners. In this activity, students will listen closely to excerpts from the opera, a kind of sampler of the sounds awaiting them in *Doctor Atomic*. They will:

- Analyze selections from *Doctor Atomic* in terms of their sonic and emotional qualities
- Interpret the relationship of text and music in the opera
- Identify recurring patterns and qualities of sound
- Express their own views on the relationships among concepts including music, sound, and noise
- Become acquainted with the sounds of *Doctor Atomic* in preparation for *The Met: Live in HD* transmission

#### STEPS

Just as technologies like MIDI synthesizers, scratching, and sampling have affected popular music, classical music has changed since the middle of the 20th century. *Doctor Atomic* is a brilliant example of this change. Its vocal pieces and orchestral writing sound nothing like a work such as Puccini’s 1904 *Madama Butterfly*—nor even Benjamin Britten’s *Peter Grimes* (which premiered only days before the first atomic blast). This activity introduces students to the sounds and technical devices John Adams used in writing *Doctor Atomic*—and by extension, offers them a point of entry to contemporary classical music. They will analyze selections from the opera in terms of:

- Technical aspects of the music, including pulse, tonality, repetition, and the layering of sound;



- The relationship of vocal music to specific demands of the sung texts; and
- The variety of sounds—and “noise”—integral to the score.

**Step 1:** If you have not already done so, introduce your students to the subject of *Doctor Atomic*—the creation of the atomic bomb in 1945. Ask students when they think an opera on this topic might have been written. (*Doctor Atomic* was composed in the first years of this century, for a 2005 premiere). Ask what kinds of music students were listening to in 2004 and 2005—only a few years back! What kind of music would they expect to hear in *Doctor Atomic*?

**Step 2:** Without further introduction, play **Track 2**—the opening soundscape (or “overture”). Ask students what they think of this piece of music. Then have them listen again, jotting down the names of all the sounds they hear. For example, they may notice the sounds of:

- power tools
- an airplane taking off
- a 1940s pop song
- the same song, stuttering as if the record were skipping
- tolling bells
- pounding timpani
- flourishes of brass
- squeaking woodwinds
- a tinkling celesta

Many of these sounds, though unexpected in an orchestral overture, are nevertheless easily classified as “music.” Some are heard in very short bursts, or in electronically modified forms. Others are more traditional instrumental sounds. But some of the sounds here would generally be considered “noise.”

The pop song “The Things We Did Last Summer” was a hit in 1946—making its “last summer” the summer in which *Doctor Atomic* takes place. Believe it or not, by that time American composers had begun working with the kinds of sounds we usually think of as noise. Ask your students why they think John Adams might have chosen to incorporate sounds like these in this opening piece? What kind of mood do they create? What

## Atomic Sounds: A Close Look at Elements of Contemporary Music



Catherine Zuber's costume designs for the  
Pueblo workers

kinds of expectations do they raise for the opera to come? How might this piece relate to the subject of the invention of the atomic bomb?

If nothing else, this piece establishes Adams's perspective that any sound can be worthy of inclusion in music. Power tools, airplanes and skipping records all contain sonic information. They can affect the response of listeners. With this guiding principle in mind, students will now more closely examine John Adams's approach to music.

**Step 3:** Shortly after the introductory soundscape, the opera proper begins with a choral piece. Invite students again to try distinguishing and describing the sounds they hear in **Track 3**.

This piece includes at least three distinct layers of sound:

- The singers;
- An underlying, repeatedly pulsing eight-note figure in the strings; and
- A variety of slashing, intervening figures on winds, brass and percussion.

While none of these are the kind of “noises” heard in the introduction, they are just as much an assemblage of sounds.

Ask students if they can understand the words sung here. They may want to listen a second and third time. To confirm the text, distribute the

resource on page 45. John Adams came across these particularly bland, technocratic words in an early pamphlet on atomic weapons. He later recalled that he immediately decided to include them in the opera, and just as quickly thought of the eight-note figure, a sound of emergency, of high-pressured rushing around, to underscore the cool, unemotional words “to make a bomb practicable.”

Listen to **Track 4**, where a similar pulse underscores the second text on the resource page. These words come from a letter by a physicist concerned that his fellow scientists had information about the possibilities of atomic warfare unavailable to most citizens—which, as the text indicates, heightened “our” (meaning the scientists’) moral responsibility.

Ask students to characterize the language here. It’s measured, respectful, almost diplomatic. Yet Adams provides a tense line of music beneath—as if to indicate the true, uncontrollable fears of the careful letter writer.

We often think of music in terms of notes, the characteristic sounds of different instruments, loudness, meter, and rhythm. John Adams has spoken instead of three, basic “primordial elements of the musical experience:” pulse, tonality and repetition. Ask students to listen again to Track 3 with these three basic concepts in mind.

**Pulse:** There are at least three different kinds of pulse in this track.

- The constant pulse of the “emergency” figure
- The built-in rhythms of human speech, as sung by the chorus. Rather than assembling words into traditional rhythmic lines, or forcing the words into accents and rhythms determined by the music, Adams’s music follows the words, enabling the chorus to “speak” almost naturally.
- The erratic pulse of the “interruptions”

**Tonality:** This refers to the musical tones themselves, their pitch and loudness, individually and in sequence. Students will be able to distinguish three lines of tonality in the three layers—the underpulse, the chorus, and the interruptions. It’s less important that they be able to name the tones than that they can hear how distinct the three layers are, how the three interact in the listener’s ear.

.....  
**FUN FACT:** John Adams often writes about contemporary and historical events in his stage works. *Nixon in China*, from 1987, explores President Richard M. Nixon’s historic trip to that country and his meeting with Chairman Mao. *The Death of Klinghoffer* examines Leon Klinghoffer’s death at the hands of terrorists on board the *Achille Lauro* cruise ship, a terrifying event which captured the world’s attention in October 1985.

## Atomic Sounds: A Close Look at Elements of Contemporary Music



Set model for *Doctor Atomic*  
(Photo: Metropolitan Opera  
Technical Department)

**Repetition:** The strongest example of repeating musical figures in this track is the emergency music. But once a composer has identified repetition as an element of music, the absence of repetition becomes important too. Here, the apparently random, surprising, slashing sounds of the interruptions might be described as a kind of a counter-repetition.

For the balance of this activity, students will analyze selections from *Doctor Atomic* with an ear toward:

- Adams's three “primordial elements”—pulse, tonality and repetition
- His technique of layering sounds, and
- His characteristic attention to the sounds of the English language

**Step 4:** In Tracks 3 and 4, students heard an example of John Adams's sensitivity to the sounds and emotional qualities of spoken language—how his setting preserved the natural rhythms of the unemotional “to make a bomb practicable” and the measured concern in “the people of the United

States are unaware.” As another example, play **Track 5**. Students will have no trouble understanding this, the first statement by an individual character in *Doctor Atomic*. Here, Edward Teller is expressing his sense that the work of creating an atomic bomb is both immoral and unforgivable—and he seems entirely unapologetic. The music sung carefully supports his thoughts and words, but what do students make of the tonality of the underscoring? Does this low, sad, liquid music represent the true state of Teller’s soul, beneath his bravado?

A few moments later, Oppenheimer tries to get Teller’s mind back to the work at hand. Have students consider the rhythms and pulse in **Track 6**. Can they figure out what he means?

- What are “home stretch measures”? (The work to be done in the last few days of the bomb project)
- Who are the “ruthless, brutal people” he refers to? (The Manhattan Project scientists)
- What is the “Fat Man”? (A nickname for the first atomic bomb)
- What does he mean by “dovetail in time and space”?

As far as Teller is concerned, Oppenheimer is speaking plainly, using terms common on their team. But the audience needs a translation for this code, this special language which bonds the team together. Notice how Adams breaks the words up into a kind of rhythmic chant, emphasizing the in-group quality of Oppenheimer’s words.

Listen to Oppenheimer continue in **Track 7**.

- What is the “cowpuncher committee”? (A committee whose job it is to keep the project moving along.) Why would he call the project leaders “cowpunchers”?
- What does he mean by “ride herd”? (To keep all the participants working hard, just as a cowboy keeps a herd of cattle moving along)
- What is the “implosion program”? (The bomb-building project)

How do the pulses in Tracks 6 and 7 differ from that of Teller’s “confession” in Track 5? (They’re more formally rhythmical, almost poetic.) Why might Adams might have taken this approach? Was Teller speaking more plainly in Track 5 than Oppenheimer is here? Why might a kind of poetic chant, or cheer, be appropriate here?



## Atomic Sounds: A Close Look at Elements of Contemporary Music

In Track 6, Oppenheimer sings of pulling all the components of the bomb together. The underscoring delivers choppy, almost random, bits and pieces of sound. How does that match the words? At the mention of a “cowpuncher committee” in Track 7, the scoring is almost as smooth as a melody: How is Adams using tonality to reflect the purpose of the committee in Oppenheimer’s mind?

Pulse, tonality, repetition, layering, and language all come together in a choral piece directly following Oppenheimer and Teller’s conversation. Distribute the other reproducible on page 46. Have students read the text of Track 9 before listening to the track. This text provides a description of the structure of the explosive outer layer of an atomic bomb—in the language of geometry. (An icosahedron is a twenty-faced solid object with triangular faces. A dodecahedron is a twelve-faced solid object with five-sided, or pentagonal, faces. Together they form the same pattern as the cover of a soccer ball.) Then it explains how the explosives squeeze the plutonium until it becomes unstable—the moment of “implosion.”

Ask students how they think Adams might set such technical points to music, then play **Track 8**. This is the music introducing the bomb-core text. It is delicate, full of gentle winds, harp and the twinkling sounds of celestas—almost the music of a fairyland. Now play **Track 9**. The words are sung by a choir of women. Strings glisten. Chimes sparkle. Only at the very end of the track, when the choir sings of disturbing the nucleus, does a dissonant note emerge.

Take each of the elements one by one, and have students discuss how Adams uses his technique to convey information and create a mood:

- **Pulse:** Measured, calm, peaceful
- **Tonality:** Women’s voices in something like a lullaby
- **Repetition:** Short chiming figures, like a clock, alternate with soft swells of strings, then a patterned figure of celesta and strings
- **Layering:** Fragile percussion and strings beneath a flowing, lyric chorus
- **Language:** Technical language offered with ironic delicacy, building to the gentlest stress at the very end



Julian Crouch designed this projection for *Doctor Atomic*.

Throughout the opera, Adams uses music like this whenever the actual science of the bomb is discussed. Pure science is presented as a sort of lovely fantasy—distinct from the practical destructiveness of the bomb. How might this reflect the thinking of the Manhattan Project scientists?

**Tracks 10** through **13** offer another fine example of Adams's technique. The subject here is the weather: A terrible storm developed the night before the first scheduled bomb test. Students can read along as they listen to Track 10; Tracks 11, 12, and 13 break the selection up for analysis. A number of the features of these tracks are noted below, but students may hear or describe things differently. That's fine. The essential point is that

they begin to listen analytically, developing their own sensitivity to the elements of Adams's composition.

**Track 11:** A chaos of clashing sounds featuring prominent timpani. Four-count figures in uneven rhythms pulse beneath, rising in tone, then crashing, again and again.

**Track 12:** General Groves lays out the military and political situation. The scoring is clear and simple beneath his words: a jagged woodwind pulse in tones as deep as his voice, complementing his intensity. But as soon as he takes a pause, chaos slips in again. He breaks up his sentences into tiny bits—"the President/of the United States/is talking/to Joe Stalin/in the morning/in Potsdam"—as if he were lecturing an idiot. Groves is trying to maintain order in an atmosphere of total disorder, to assert his control against uncontrollable forces of nature.

**Track 13:** The chaos floods back with pounding drums and a simultaneous, entirely separate pulse of brass. This theme abruptly pulls back to the simple, jagged underscore of winds associated with Groves as he bursts out again, absurdly demanding that the weather comply with his commands. He threatens the meteorologist over an entire beat of complete silence—a choice of Adams's which students might like to discuss.

**FOLLOW-UP:** John Adams has taken a clear stand that any sounds can be usefully and legitimately incorporated into music. After listening closely to some of his music, students might agree—or not! For homework, have them write an essay on the topic "There's a difference between music and noise—true or false, and why." They should incorporate specific examples from music familiar to them in and outside school.

# MUSICAL HIGHLIGHTS

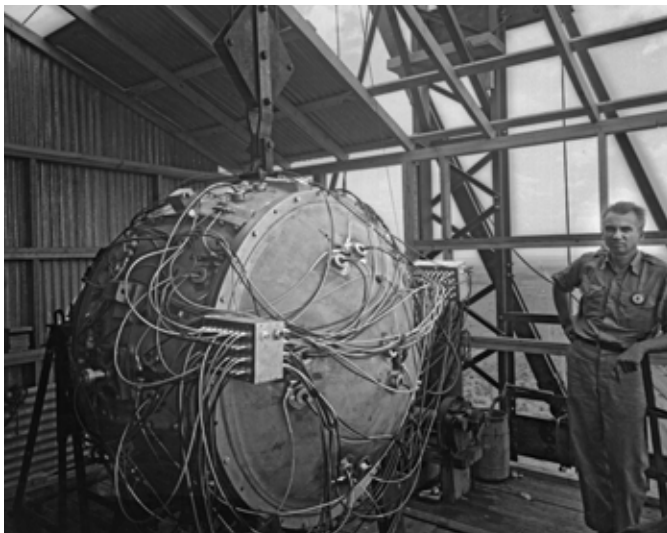
## “MUSICAL HIGHLIGHTS” PROVIDE OPPORTUNITIES TO

- Help students make sense of opera
- Whet their interest in upcoming transmissions of *The Met: Live in HD*

Each focuses on music from the accompanying CD or audio clips available on the Met website at [www.metopera.org/education](http://www.metopera.org/education). They direct students’ attention toward highlights and details that can organize and illuminate their viewing of the transmission. The descriptions below offer listening pointers.

These “mini-lessons” will in practice take up no more than a few minutes of class time. They’re designed to help you bring opera into your classroom while minimizing interruption of your ongoing curricular sequence. Feel free to use as many as you like.

The bomb, nicknamed “the gadget,” is seen here in a historical photo from Los Alamos and as part of Julian Crouch’s set design. (Historical photo: courtesy Los Alamos National Laboratory)



## MUSICAL HIGHLIGHT

### The Origin of Trinity: A Close Look at Oppenheimer's Aria

#### J. ROBERT OPPENHEIMER NAMED THE ATOMIC TEST SITE IN

New Mexico "Trinity." He later explained that the idea came from one of John Donne's "Holy Sonnets." John Adams set this sonnet to music as the close of Act I, an aria in which "Doctor Atomic" reveals a bit more of his perspective on the project.

Donne wrote his sonnet in the voice of a man crying out to God. The man uses the metaphors of a conquered town and a lover. He prays that God might end his captivity. Only if God "imprisons" him can he resist evil. This Musical Highlight is designed to help students understand the sonnet's independent meaning as well as the meanings attached to it when sung by Oppenheimer. The text can be found on page 47. The complete aria is available at Track 14 with the vocal sections available separately at Tracks 15, 16, and 17.

**Track 14:** Listening to the entire aria, students will want to consider the differences between the sung and instrumental sections. Moving among these sections, Adams jumps back and forth between Oppenheimer's internal state and his perception of the world around him. In a moment, the class will carefully consider Oppenheimer's words, but for now, how does the world seem to Oppenheimer—on the evidence of the sound of his voice and the instrumental music that surrounds him?

**Track 15:** The first stanza of the sonnet features a set of verbs—actions which the speaker prays God might take, attacking the speaker's very heart—including

- batter
- knock
- breathe
- shine
- mend

As set by Adams, each of these has its own, distinct emotional meaning, forming a kind of sequence which the speaker believes might redeem and renew him.

The God in question is the "three-person'd" Christian God—the origin of the term "Trinity." The sonnet imbues this God with tremendous power—but remains uncertain about God's use of that power: what is the





Another of Julian Crouch's  
projection designs

speaker asking God to do? Why might J. Robert Oppenheimer think of this sonnet on the eve of the first atomic blast?

**Track 17:** After repeating the first stanza (in Track 16) the speaker begins to weave a metaphor. Students will want to clarify the meaning of several phrases here:

- Like an usurpt town (a town that has been conquered)
- To another due (controlled by a force other than the speaker or God)
- I... Labor to admit you (seek to allow God into my heart)
- Reason your viceroy (Interestingly, the speaker considers rational thought, not faith or feeling, the representative of God.)

## The Origin of Trinity: A Close Look at Oppenheimer's Aria

- Me should defend (that is, reason should be enough for me to protect myself)
- But is captiv'd and proves weak or untrue (reason itself is held prisoner and cannot overcome the un-Godly force)

At “dearly I love you,” the metaphor changes from that of a conquered town to that of a would-be lover, engaged, however, to be married to God’s enemy. As if this were not enough to heighten the passion of the speaker’s plea, he asks God not only to “divorce me” but to “imprison,” “enthrall” and “ravish” me—ravish, in this case, most likely meaning “rape.” In the poem’s paradoxical ending, the speaker argues that he cannot be chaste—a virgin—unless raped, conquered, possessed by God.

Though Oppenheimer attributed his choice of the term “Trinity” to this poem, there is no record of his connecting the poem’s broader sentiment to his thoughts about the Manhattan Project. What might Adams and Peter Sellars mean by putting this entire sonnet, with all its passion and despair, in their protagonist’s mouth? Is their Oppenheimer suffused with guilt and a sense of utter powerlessness? How does this aria reflect the theme of moral decision-making that runs through *Doctor Atomic*?

## MUSICAL HIGHLIGHT

### Spirits in the Night: A Close Look at a Sequence of Juxtaposed Sounds

#### THE DOCUMENTARY NATURE OF THE *DOCTOR ATOMIC*

libretto occasionally allows for moments of actual conversation. More often, independent statements are set alongside one another to create contrasts and contexts that carry meanings of their own. A prime example early in Act II involves three secondary characters: the Oppenheimers' housekeeper, a Tewa woman named Pasqualita; General Groves; and Edward Teller. Have students review the texts, reproduced on page 48 below, then listen to the sequence on **Tracks 18, 19, 20, 21, 22 and 23**.

**Track 18:** Here, Pasqualita is at the Oppenheimers' home, caring for their children. With the barest accompaniment, a deep humming that might represent solemn thought, she sings a reprise of a lullaby heard earlier in Act II. (The words come from a Tewa Indian song.) In this context, they allude not only to an actual rainstorm, but also to the imminent atomic test.

**Track 19:** Many miles away, at the test site, General Groves is concerned that a political event in Europe could affect a decision by Japan and change the atomic attack plan. It's worth noting that, at this point, he is not concerned with the test. He's pontificating, considering the broader situation, keeping himself occupied during the long vigil. Yet note that his accompaniment here is a continuation of the low, thoughtful line in Track 18...

**Track 20:** ...and that it continues as Pasqualita continues her lullaby, then all at once, clocks begin to tick as the countdown gets underway.

**Track 21:** Teller, like Groves, is at the test site, just waiting. So are other physicists, and he mentions a gruesome bet the others have made while they kill time. Notice the sound of the celesta in the middle of his monologue—a brief, ironic reminder that a thought as dark as this one actually derives from the joy of considering science in its purity, without worry about practical consequences (as discussed with respect to Track 9 in

the Classroom Activity, *Atomic Sounds*, above). But note also how Teller's music ends in a downward slide, with a scary tone, punctuated by a string figure that might have come from the score to some 1950s sci-fi thriller.

Track 22: Groves responds to Teller, displeased, his displeasure underscored with urgent pulsing, groans and squeaks.

Track 23: But the general is not merely displeased. He is, as usual, worried about maintaining order on the project. Sounds of squawking discord in the accompaniment convey his fears.

After reading the text and listening to the recordings, students can discuss the various perspectives. What is on the mind of each of these characters? What are their moods? How does John Adams convey these moods? In particular, how does Pasqualita's mysterious lullaby affect our view of Groves and Teller?

There seems to be an issue here of "taking things seriously." What would it mean to take a night like this seriously? As far as your students are concerned, do these characters pass the test?

## MUSICAL HIGHLIGHT

### Song of the Eternal Feminine: A Close Look at the Aria “Easter Eve, 1945”

#### ALMOST ALL THE PARTICIPANTS IN THE MANHATTAN PROJECT

were men (though many of their families joined them in New Mexico). By introducing the major character of J. Robert Oppenheimer’s wife, Kitty, John Adams intended to bring what he has called “the eternal feminine” to *Doctor Atomic*. Kitty, he’s written, channels all of human history and brings awareness of moral consequence to the project. In the libretto, Kitty speaks almost exclusively in the words of Muriel Rukeyser, a poet of the same era who shared many of the real Kitty’s beliefs and opinions.

Act II opens with a setting of Rukeyser’s poem, “Easter Eve, 1945” (a date was only months before the atomic test on July 16, 1945). Rukeyser’s poem is a response to the darkest days of the Second World War. Kitty sings as she waits, together with her housekeeper and her sleeping children, in their home far from the test site. It’s worth considering both the poem itself and ways that its meanings change in the context of Kitty’s thoughts.

This Musical Highlight considers the first part of the aria by way of illustration; tone and themes change in the second part. The text can be found on page 49 (the complete poem is easily found online). Students may want to note some of the language before listening to the recording, including:

- References to time (fitting for an aria sung during a long night of waiting)
- “The great morning of the west” (fitting for an opera about an event in New Mexico)
- References to cycles of death and life, to the certainty of death, and to resurrection (all perhaps chosen in context of the title’s wartime “Easter Eve,” but with special resonance here)
- “The ships of war”
- References to “black-yellow light” and the “death of light”
- References to soldiers “gathering fire,” “fighting with flame,” yet at the same time “shining with life”
- References to “the leaf,” first as something that dies giving new birth to a root, then as an example of life’s inherent shine

The recording is presented in three sections: **Tracks 24, 25 and 26.**



Oppenheimer and his wife, Kitty, in the 1960s  
(Photo: Emilio Segrè Visual Archives)

**Track 24:** In its opening section, the aria establishes the theme of waiting during a long night at a time of death. It builds, however, toward a courageous celebration of “shining” life. Notice how human life is connected to life in “the leaf” and “the wing,” references worthy of discussion. Listen for Adams’s instrumentation—serving here primarily to accent Kitty’s words. For instance, we hear strings, chimes, and celesta—often associated in this opera with references to the wonders of science. Then all accompaniment stops as Kitty sings, “death of all man to share:” What effect does that have on the listener? As the track ends, special emphasis is placed on the idea of life “shining:” The tonality is chilling, but does Kitty mean to offer fear or comfort?

**Track 25:** After a few beats of silence at the end of Track 24, an instrumental passage begins: might Kitty have run out of words to express herself? The passage has a subtle pulse, like thoughts turning and colliding as we lay awake in bed. How does this music reiterate Kitty’s state of mind?

**Track 26:** Abruptly, Kitty returns to the notion of “shining”—extending it now to inanimate objects—a stone, a drop of water. “Secretly,” she sings, “all things shine.” Further, they are “lit by their energies.” In context, might this refer to the relationship between matter and energy at the heart of the atomic project? What do students make of her tone, underscored by strings with a mounting tension? Do they hear passion? Anger? Frustration? Insanity? When Kitty sings that “each part... shall rise up whole,” is she expressing faith or only a wish laced with fear?

After listening to this portion of the aria, students may want to consider Adams’s notion of “the eternal feminine.” How do Kitty’s concerns contrast with those of her husband, Groves, and Teller? What is the effect of including a character not directly involved in the creation of the bomb? Would the effect be different if this outside character were a man instead?



# PERFORMANCE ACTIVITIES

Supporting Students during  
*The Met: Live in HD* Transmission

## THANKS TO PRINT AND AUDIO RECORDING, MUCH ABOUT

opera can be enjoyed long before a performance. But the performance itself remains an incomparable embarrassment of riches—sound and color, pageantry and technology, drama, skill, and craft. Performance activities are designed to help students tease apart different aspects of the experience, consider creative choices that have been made, and sharpen their own critical faculties.

Each activity incorporates a reproducible activity sheet. Students bring the activity sheet to the transmission for filling out during intermission and/or after the final curtain. The activities direct attention to characteristics of the production that might otherwise go unnoticed. Ratings matrices invite students to express their critique, a time-tested prompt for careful thinking.

The basic activity sheet is called My Highs & Lows. Meant to be collected, opera by opera, over the course of the season, this sheet points students toward a consistent set of objects of observation. Its purposes are not only to help students articulate and express their opinions, but to support comparison and contrast, enriching understanding of the art form as a whole.

For *Doctor Atomic*, the other activity sheet “An Opera of Fact” directs students’ attention toward special concerns in staging an opera based on historical facts, as reflected in the Met’s new production.

Activity reproducibles can be found on the last pages of this guide. Either activity can provide the basis for class discussion after the transmission. On the next page, you’ll find an additional activity created specifically for post-show follow-up.

## POST-SHOW DISCUSSION

“Ripped from the Headlines”: A Close Look at the Subject Matter That Makes Opera Tick

### IN PREPARATION

This activity requires no preparation other than attendance at *The Met: Live in HD* transmission of *Doctor Atomic*.

### CURRICULUM CONNECTIONS

Language Arts and Social Studies (History and Current Events)

### LEARNING OBJECTIVES

- To review and consolidate students' experiences with *Doctor Atomic*
- To prompt students to consider the suitability of real-life events to opera
- To provoke comparisons between the subjects of *Doctor Atomic* and more traditional operas
- To spur thinking about the larger issues behind each day's news

### STUDENTS WILL ENJOY STARTING THE CLASS WITH AN OPEN

discussion of the Met performance. What did they like? What didn't they? Did anything surprise them? What would they like to see or hear again? What would they have done differently? This discussion will offer students an opportunity to review the notes on their My Highs & Lows sheet, as well as any other thoughts about the Met production—in short, to see themselves as *Doctor Atomic* experts.

Begin by listing operas your students are familiar with. What's the subject? What's the underlying crisis? In short, what makes a story operatic? Characters? Relationships? Morality? Conflict? Fiery feelings? Does an opera require some profound, transcendent underlying problem to be successful?

One way to think about this issue is to consider differences between opera and film. Students can imagine a movie about J. Robert Oppenheimer and the creation of the atom bomb.

- What would they include? What would they leave out?
- How would the plot be different from *Doctor Atomic*?
- What can an artist do in film that can't be done on the opera stage?
- What can opera bring audiences that movies can't?

As follow-up, in class or at home, students should pick an event that took place during their lifetime and imagine how they'd turn it into an opera.

- What is the underlying emotional or moral crisis?
- Who would the characters be? What voices would each have—soprano, tenor, bass?
- What would happen in each act?
- Which moments in the plot would demand arias, whether to reveal the characters' thoughts or to advance the story?

## STUDENT RESOURCES

**ON THE FOLLOWING PAGES, YOU'LL FIND REPRODUCIBLES** of the texts and worksheets for each *Doctor Atomic* activity. Feel free to photocopy these and distribute them in your classroom.

Pages 50 and 51 are activity sheets to be used at *The Met: Live in HD* transmission. Page 50 is designed to focus student attention during the transmission and to support your post-transmission classroom work. Page 51, My Highs & Lows, is a collectible prompting closer attention to specific aspects of the opera. You may want to provide copies of My Highs & Lows not only to students, but to friends, family and other members of the community attending the transmission.

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**THE METROPOLITAN OPERA: *LIVE IN HD***  
***DOCTOR ATOMIC***

Activity Sheet for Classroom Activity

**Oppenheimer's Voices**

**Text A**

"We believed that matter can be neither created nor destroyed, but only altered in form. We believed that energy can be neither created nor destroyed, but only altered in form. But now we know that energy may become matter, and now we know that matter may become energy, and thus be altered in form."

.....

**THE METROPOLITAN OPERA: *LIVE IN HD***  
***DOCTOR ATOMIC***

Resource Page for Classroom Activity

**Oppenheimer's Voices**

**Text B: Oppenheimer talks with Edward Teller**

**TELLER:** First of all, let me say that I have no hope of clearing my conscience. The things we are working on are so terrible that no amount of protesting or fiddling with politics will save our souls.

**OPPENHEIMER (quoting Charles Baudelaire):** "The soul is a thing so impalpable, so often useless, and sometimes so embarrassing that at this loss I felt only a little more emotion than if, during a walk, I had lost my visiting card."

.....

**THE METROPOLITAN OPERA: *LIVE IN HD***  
***DOCTOR ATOMIC***

Resource Page for Classroom Activity

**Oppenheimer's Voices**

**Text C: Oppenheimer, in soliloquy**

**OPPENHEIMER** (quoting **John Donne**): "three person'd God ... dearly I love you and would be lov'd fain,  
but am betrothed unto your enemy."



.....

THE METROPOLITAN OPERA: *LIVE IN HD*  
*DOCTOR ATOMIC*

Resource Page for Classroom Activity

**Oppenheimer's Voices**

**Text D: Oppenheimer talks with General Leslie Groves**

**GROVES:** I am asking for a firm prediction as when the storm will pass.

**OPPENHEIMER (quoting the *Bhagavad Gita*):**

"I am the heat of the sun, and the heat of the fire am I also;

Life eternal and death. I let loose the rain, or withhold it.

Arjuna, I am the cosmos revealed, and its germ that lies hidden."

.....

**THE METROPOLITAN OPERA: *LIVE IN HD***  
***DOCTOR ATOMIC***

Resource Page for Classroom Activity

**Oppenheimer's Voices**

**Text E: Oppenheimer talks with Captain James Nolan**

**NOLAN:** Ever since the first grams of plutonium arrived at Los Alamos, sir, the medical division has been studying the toxic properties of the deadly metal. Its metabolism is similar to radium: Enough of it in the human body eats through vital tissues, disintegrates human kidneys and causes fatal bone cancer. Sir, no cure has been found for the agonies that result from overexposure to fallout and radiation.

**OPPENHEIMER (quoting the *Bhagavad Gita*):**

"Feelings of heat and cold,  
pleasure and pain,  
are caused by the contact of the senses  
with their objects.  
They come and go, never lasting long.  
You must accept them."

.....

**THE METROPOLITAN OPERA: *LIVE IN HD***  
***DOCTOR ATOMIC***

Resource Page for Classroom Activity

**Oppenheimer's Voices**

**Text F: Oppenheimer talks with Nolan and Groves**

**GROVES:** Now you're telling me that we should be ready to evacuate Trinity? Bring in troops and trucks to get everyone out at a moment's notice if something goes wrong?

**NOLAN:** That could be the case, sir.

**GROVES:** What are you, a Hearst propagandist?

**OPPENHEIMER (quoting the *Bhagavad Gita*):** "A serene spirit accepts pleasure and pain with an even mind and is unmoved by either. He alone is worthy of immortality."

.....

**THE METROPOLITAN OPERA: *LIVE IN HD***  
***DOCTOR ATOMIC***

Resource Page for Classroom Activity

**Oppenheimer's Voices**

**Text G: Counting Down to the Blast**

**OPPENHEIMER (quoting Baudelaire):** "To what benevolent demon do I owe the joy of being thus surrounded with mystery, with silence, with peace, and with perfumes? O beatitude! That which we generally call life, even when it is fullest and happiest, has nothing in common with that supreme life with which I am now acquainted and which I am tasting minute by minute, second by second! No! There are no more minutes, there are no more seconds! Time has disappeared; it is Eternity that reigns now!"

.....

## THE METROPOLITAN OPERA: *LIVE IN HD* *DOCTOR ATOMIC*

Resource Page for Classroom Activity

### Atomic Sounds

#### TRACK 3:

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.

All the problems are believed  
to have been solved  
at least well enough  
to make a bomb practicable.

#### TRACK 4:

The people of the United States are unaware of the choice we face. And  
this only increases our responsibility in this matter.

#### TRACK 5:

First of all, let me say that I have no hope of clearing my conscience. The  
things we are working on are so terrible that no amount of protesting or  
fiddling with politics will save our souls.

#### TRACK 6:

Home stretch measures, Edward. Ruthless, brutal people must band  
together to force the Fat Man components to dovetail in time and space.

#### TRACK 7:

The cowpuncher committee has a mandate to “ride herd” on the implosion  
program.

.....

**THE METROPOLITAN OPERA: *LIVE IN HD***  
***DOCTOR ATOMIC***

Resource Page for Classroom Activity

**Atomic Sounds**

**TRACK 9:**

We surround the plutonium core  
from thirty-two points  
spaced equally around its surface,  
the thirty-two points  
are the centers of the  
twenty triangular faces  
of an icosahedron  
interwoven with the  
twelve pentagonal faces  
of a dodecahedron.

We squeeze the sphere.  
Bring the atoms closer.  
Til the subcritical mass  
goes critical.  
We disturb the stable nucleus.

**TRACK 10:**

Five hundred U.S. Superfortresses are raining down incendiary bombs on four Japanese cities.  
Our B-29s are destroying half of every Jap city they hit. The President of the United States is talking  
to Joe Stalin in the morning in Potsdam. This test will proceed as scheduled, with full weather  
compliance, or you will spend the rest of your life behind bars, Mr. Meteorologist.



.....

**THE METROPOLITAN OPERA: *LIVE IN HD***  
***DOCTOR ATOMIC***

Resource Page for Musical Highlight

**The Origin of Trinity**

**John Donne, “Holy Sonnet XIV”:**

Batter my heart, three person'd God; For, you  
As yet but knock, breathe, knock, breathe, knock, breathe  
Shine, and seek to mend;  
Batter my heart, three person'd God;  
That I may rise, and stand, o'erthrow me, and bend  
Your force, to break, blow, break, blow, break, blow  
burn and make me new.

I, like an usurpt town, to another due,  
Labor to'admit you, but Oh, to no end,  
Reason your viceroy in me, me should defend,  
But is captiv'd, and proves weak or untrue,  
Yet dearly I love you, and would be lov'd fain,  
But am betroth'd 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.

.....

**THE METROPOLITAN OPERA: *LIVE IN HD***  
***DOCTOR ATOMIC***

Resource Page for Musical Highlight

**Spirits in the Night**

**PASQUALITA:** In the south the cloud flower blossoms,  
And now the lightning flashes,  
And now the thunder clashes,  
And now the rain comes down!  
A-a-aha ...

**GROVES:** A delay in issuing the Potsdam ultimatum could result in a delay in the Japanese reaction, with a further delay to the atomic attack on Japan. Obviously, a reasonable time has to be allowed for the Japanese to consider the ultimatum.

**PASQUALITA:** ... a-a-aha, my little one.

**TELLER:** Fermi is taking wagers as to whether the bomb will ignite the atmosphere, and if so, whether it will destroy just New Mexico or the entire world.

**GROVES:** I fail to appreciate your black humor, Doctor Teller. This is exactly the kind of loose talk that might paralyze the enlisted men with fright.

.....

**THE METROPOLITAN OPERA: *LIVE IN HD***  
***DOCTOR ATOMIC***

Resource Page for Musical Highlight

**Song of the Eternal Feminine**

from Muriel Rukeyser, “Easter Eve, 1945”:

Wary of time O it seizes the soul tonight  
I wait for the great morning of the west  
confessing with every breath mortality.  
Moon of this wild sky struggles to stay whole  
and on the water silvers the ships of war.  
I go alone in the black-yellow light  
all night waiting for day, while everywhere the sure  
death of light, the leaf’s sure return to the root  
is repeated in million, death of all man to share.  
Whatever world I know shines ritual death,  
wide under this moon they stand gathering fire,  
fighting with flame, stand fighting in their graves.  
All shining with life as the leaf, as the wing shines,  
the stone deep in the mountain, the drop in the green wave.  
Lit by their energies, secretly, all things shine.  
Nothing can black that glow of life; although  
each part go crumbling down itself shall rise up whole.

# Performance Activity: An Opera of Fact

THE METROPOLITAN OPERA: *LIVE IN HD*

*DOCTOR ATOMIC*, NOVEMBER 8, 2008

NAME \_\_\_\_\_

CLASS \_\_\_\_\_

TEACHER \_\_\_\_\_

The events of *Doctor Atomic* took place decades ago—but that’s not very far back compared to most operas. There are people alive today who lived through those days, people who still remember the first atomic test. While most operas are entirely imaginary, the Met’s artists must convince audiences that this depicts a true historical moment. How might that affect the staging? What aspects of this opera production enable you to believe in the “realness” of *Doctor Atomic*? Take note of specific examples. We’ve left room for you to add anything else that catches your ear and eye.

THIS ASPECT OF THE OPERA...	MAKES THE STORY FEEL (Check one)	SPECIFIC EXAMPLES
-----------------------------	----------------------------------	-------------------

The way characters express themselves	<input type="checkbox"/> OLD-FASHIONED <input type="checkbox"/> UP-TO-DATE	
---------------------------------------	---	--

The way characters respond to one another	<input type="checkbox"/> OLD-FASHIONED <input type="checkbox"/> UP-TO-DATE	
---	---	--

Actions the characters take	<input type="checkbox"/> OLD-FASHIONED <input type="checkbox"/> UP-TO-DATE	
-----------------------------	---	--

The characters’ feelings about America’s place in the world	<input type="checkbox"/> OLD-FASHIONED <input type="checkbox"/> UP-TO-DATE	
---	---	--

The Tewa people’s unspoken commentary on the scientists	<input type="checkbox"/> OLD-FASHIONED <input type="checkbox"/> UP-TO-DATE	
---	---	--

Hats	<input type="checkbox"/> OLD-FASHIONED <input type="checkbox"/> UP-TO-DATE	
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Clothing	<input type="checkbox"/> OLD-FASHIONED <input type="checkbox"/> UP-TO-DATE	
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Set design	<input type="checkbox"/> OLD-FASHIONED <input type="checkbox"/> UP-TO-DATE	
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Objects the characters use or hold	<input type="checkbox"/> OLD-FASHIONED <input type="checkbox"/> UP-TO-DATE	
------------------------------------	---	--

	<input type="checkbox"/> OLD-FASHIONED <input type="checkbox"/> UP-TO-DATE	
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# Doctor Atomic: My Highs & Lows

THE METROPOLITAN OPERA: *LIVE IN HD*

DOCTOR ATOMIC, NOVEMBER 8, 2008

CONDUCTED BY ALAN GILBERT

REVIEWED BY

THE STARS			
	STAR POWER	MY COMMENTS	
GERALD FINLEY AS J. ROBERT OPPENHEIMER	★ ★ ★ ★ ★		
SASHA COOKE AS KITTY OPPENHEIMER	★ ★ ★ ★ ★		
RICHARD PAUL FINK AS EDWARD TELLER	★ ★ ★ ★ ★		
ERIC OWENS AS GENERAL LESLIE GROVES	★ ★ ★ ★ ★		
MEREDITH ARWADY AS PASQUALITA	★ ★ ★ ★ ★		
THE SHOW, SCENE BY SCENE	ACTION	MUSIC	SET DESIGN/ PROJECTIONS/ STAGING
OPENING SOUNDSCAPE	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5
MY OPINION			
THE CHORUS SETS THE SCENE	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5
MY OPINION			
TELLER AND OPPENHEIMER DISCUSS THE CHALLENGE	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5
MY OPINION			
WILSON’S PETITION	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5
MY OPINION			
KITTY AND OPPENHEIMER AT HOME	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5
MY OPINION			
THE WORRIES ABOUT WEATHER	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5
MY OPINION			
OPPENHEIMER’S ARIA “BATTER MY HEART”	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5
MY OPINION			
KITTY’S ARIA “WARY OF TIME”	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5
MY OPINION			
PASQUALITA’S LULLABY	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5
MY OPINION			
THE COUNTDOWN	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5
MY OPINION			
THE BOMB GOES OFF	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5
MY OPINION			
THE AFTERMATH (RECORDED VOICE)	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5
MY OPINION			
SET DESIGN PROJECTIONS	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5
MY OPINION			

Music by John Adams

Libretto by Peter Sellars, adapted from original sources

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For further information about John Adams:

[www.boosey.com/adams](http://www.boosey.com/adams)

[www.earbox.com](http://www.earbox.com) (John Adams's website)

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