AN INVESTIGATION OF TECHNOLOGICAL IMPRESSIONS IN STEVE REICH AND

BERYL KOROT'S *THREE TALES*


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ABSTRACT

Eftychia Papanikolaou, Advisor

The impact of technology upon the twentieth century and the influence it continues to exert upon the present human community is self-evident. The allure and power of technology are broadcast via the grandest media and performance entertainment, while on the opposite spectrum, technology is being continually refined to render its electro-mechanical or bio-technical feats for humans. It is this theme of the increasing growth and import of technology upon every facet of human life that serves as the subject of *Three Tales*, a twenty-first century documentary digital video opera by composer Steve Reich and video artist Beryl Korot. In this work, Reich and Korot confront society's negligence of particular directions that technological development and application have undergone in the past century, and advise against taking the same paths in the coming era.

Even as modern technology is critiqued in *Three Tales,* the work itself bends to accept the reality of technology's significance upon modern thought and life. In keeping with Reich and Korot's categorization of the work as a "documentary digital video opera," *Three Tales* is a performance work heavily dependent upon technology for its generation, presentation, and discussion of the interchange between technology and humankind. This thesis will investigate how technology has shaped the course of an artwork whose purpose is to expose and debate the handling of technology in current society. Technology in *Three Tales* is examined from various perspectives. Chapter one presents the foundational role of technology as "tool," "subject," and "theme." Chapter two considers how visual and audio technologies are used in *Three Tales* to suggest the effects technology may have upon perceptions of human connectedness and isolation. Chapter three investigates the inherent paradox in *Three Tales* that occurs from using

technological devices for the work's production while its theme critiques modern, technological advances. The chapter also considers the influence technology has upon the formation of *Three Tales*'s generic identification.

ACKNOWLEDGMENTS

TABLE OF CONTENTS

## LIST OF FIGURES

LIST OF MUSICAL EXAMPLES

INTRODUCTION: TRACKING TECHNOLOGICAL SIGNIFICANCE:

TECHNOLOGY'S ROLE IN SHAPING *THREE TALES*

Technology's link with scientific knowledge and its associations with power, human

achievement, and productivity have given it substantial currency with society. The term is

derived from the ancient Greek *techne* and is defined as "an art, skill, or craft; a technique,

principle, or method by which something is achieved or created. Also: a product of this, a work

of art."[1] Technological advancements achieved by humanity have mitigated the difficulties of

daily tasks, solved problems related to disease, and bypassed human physical limitations, such as

enabling the traversal of the seas or the exploration of space. Author Vaclav Smil has observed

that the twentieth century is particularly marked for its technological advancements and

innovations in the areas of "electricity generation, the internal combustion engine, and the

development of new materials and new means of communication," all of which transpired during

the "two pre-WWI generations (1867-1914)."[2] Such innovations prepared the way to establish

Western society as it is now recognized. Smil asserts that:

> During the course of the twentieth century, technical advances became the key
> determinants of the structure and the dynamics of astonishingly productive and
> increasingly interdependent economies, and they brought impressive affluence and higher
> quality of life. At no other time did so many people (about two billion by the 1990s)
> enjoy such a level of well-being, such an amount and selection of inexpensive food, such
> a choice of goods and services, such access to education and information, and such a high
> mobility and political freedoms.[3]

Despite the advantages technology has afforded, it has been criticized for the negative

influences and interactions it has incurred upon humanity and the earth's environment. Jacques

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[1] *Oxford English Dictionary*, s.v. "techne," http://0-
www.oed.com.maurice.bgsu.edu/view/Entry/273538?redirectedFrom=techne#eid (accessed April 25, 2013).
[2] Vaclav Smil, *Transforming the Twentieth Century: Technical Innovations and Their Consequences* (New York:
Oxford University Press, 2006), 6.
[3] Smil, *Transforming the Twentieth Century*, 6.

Ellul, author of *The Technological Society*, discusses the interactions between technology and the

environment:

> [Technology] destroys, eliminates, or subordinates the natural world, and does not allow this world to restore itself or even to enter into a symbiotic relation with it. The two worlds obey different imperatives, different laws which have nothing in common.[4]

Authors John Zerzan and Alice Carnes make a similar conclusion about technology as they

identify one possible source of its origin:

> Technology is an impulse, a thought form, before it has anything to do with tools. It grows from the desire to rival the awesome, unfathomable creativity of the earth. This is where the domination of nature begins.[5]

The types of concerns and conclusions expressed by Ellul, Zerzan, and Carnes are

addressed by composer Steve Reich and visual artist Beryl Korot in their work *Three Tales*. The

major sub-text of the work examines the dangers of using technology's power to dominate the

earth. Humanity's tendency to either dominate or nurture the earth, as is related in the biblical

text of Genesis, is also identified by Reich and Korot as a foundational theme of *Three Tales*.

Korot articulates that "these two aspects of humankind represent an ongoing struggle, both

internally within a single human being, and also between nations."[6] Reich noted that "we're all

both of these things. That's the human condition, only now there's enough technology around to

make us wonder if we're going to lose the [simpler] part of ourselves."[7]

In the early nineties, Dr. Klaus Peter Kehr, Director of the Vienna Festival, requested a

music-video work from Reich and Korot that would bear characteristics similar to their previous

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[4] Jacques Ellul, "The Technological Society," in *Questioning Technology: Tool, Toy, or Tyrant*? ed. John Zerzan and Alice Carnes (Philadelphia, PA: New Society Publishers, 1991), 43.

[5] John Zerzan and Alice Carnes, ed., *Questioning Technology, Tool, Toy, or Tyrant?* (Philadelphia, PA: New Society Publishers, 1991), 12.

[6] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*," interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD. (Nonesuch Records 79662-2, 2003).

[7] Steve Reich, interview by David Sterritt, "Minimalist Composer Passionately Explores Moral, Religious Realm," *Christian Science Monitor*, February 26, 1997, http://www.csmonitor.com/1997/0226/022697.feat.music.1.html (accessed April 20, 2013).

music-video creation, *The Cave* (1993). A further stipulation of the commission required that the theme of the work focus upon the twentieth century. Reich and Korot concluded that technology was the most crucial and defining aspect of the time period, and *techne* was chosen as *Three Tales*'s over-arching theme.

In *Three Tales,* viewers observe a synthesis of music and science as three revolutionary technologies of the twentieth century unfold in three "tales" or acts. Tale I, *Hindenburg*, portrays the doomed flight of the zeppelin Hindenburg in 1937. Tale II, *Bikini*, depicts the atomic bomb testing that occurred at Bikini Atoll between 1946 and 1954. Tale III, *Dolly*, discusses the creation of the cloned sheep Dolly in 1997, as well as technological advances made to bridge the divide between humanity and machine. The duration of the entire work is sixty-five minutes. Previews of Act I, *Hindenburg*, occurred in 1998 in Vienna, Munich, and the Spoleto Festival in the United States. *Three Tales* was fully completed and premiered in its entirety at the Vienna Festival in 2002. An outline is provided below that illustrates the separation of *Three Tales* into its respective acts and scenes.[8]

> HINDENBURG *11:14*
>
> It Could Not Have Been a Technical Matter *(DVD only)*
> 1. Nibelung Zeppelin *3.19*
> 2. A Very Impressive Thing to See *2:35*
> 3. I Couldn't Understand It *5:14*
>
> BIKINI *22:40*
>
> 4. In the Air 1 *1:24*
> 5. The Atoll 1 *1:46*
> 6. On the Ships 1 *2:46*
> 7. In the Air 2 *1:53*
> 8. The Atoll 2 *2:28*
> 9. On the Ships 2 *2:44*
> 10. In the Air 3 *1:58*

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[8] The list reflects the numbering and order of *Three Tales* according to the *Three Tales*'s Nonesuch Records CD insert.

11. The Atoll 3 *2:48*
12. On the Ships 3 *2:16*
13. Coda *2:17*

DOLLY *26:30*

14. Cloning *2:45*
15. Dolly *1:53*
16. Human Body Machine *6:13*
17. Darwin *4:04*
18. Interlude *0:31*
19. Robots/Cyborgs/Immortality *10:37*

*Three Tales* has been designated by its creators as a "documentary digital video opera."[9] The events of each tale, presented via the media of historical video footage, interviews, photographs, and text, are shown above the audience on a thirty-two foot screen. The music of *Three Tales*'s involves emphasis on percussion, as well as a string quartet and a small chorus. The instrumental score calls for two vibraphones, two snare drums, two kick drums, a suspended cymbal, two keyboards, and a string quartet. The instruments are joined by a group of five singers, consisting of three tenors and two sopranos. Their function is to comment on the visual action, repeat verbal phrases, or emphasize the visualized Genesis text through song. While a small chorus does exist in *Three Tales*, the soloist or the actor/singer assuming the role of a staged character, does not.

According to Reich, the musical and visual format of *Three Tales* was organized in order to comment upon the particular time periods they depict.[10] Reich describes Act I, *Hindenburg* as being divided into "four scenes with short pauses between them in a more or less conventional way you might have found at the time."[11] The composer asserts that Korot originally conceived

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[9] According to Steve Reich's website, www.stevereich.com under "*Three Tales*," then, "Information."
[10] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*," interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.
[11] Ibid.

Act II, *Bikini* as "three image/music "blocks" which are each repeated three times, as a kind of

built-in meditation, with a coda at the end."[12] Act III, *Dolly*, Reich defines as a kind of "free

rondo" that is non-stop, with "certain kinds of material recurring in no particular pattern."[13]

Whereas the acts *Hindenburg* and *Bikini* are reliant upon historical audio and visual

material to convey information, Act III, *Dolly*, centers upon the interviews of prestigious

scholars and scientists. Their names followed by their professional associations are listed in order

of appearance below:[14]

**1. Cloning**

*Kismet-*
- Robot created by Cynthia Breazeal[15] at MIT

*Ruth Deech-*
- Chair of the Human Fertilization and Embryology Authority between 1994 and 2002[16]
- Given the title Dame Ruth Lynn Deech, DBE in 2005[17]
- Published *IVF to Immortality: Controversy in the Era of Reproductive Technology* with co-author Anna Smajdor in 2007[18]
- Currently sits as a Crossbench peer in the House of Lords (2005-)[19] and chairs the Bar Standards Board (2009-)[20]

*Richard Dawkins-*
- Known for his "defense and popularization of a modern version of Charles Darwin's theory of evolution"[21]

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[12] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*," interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.

[13] Ibid.

[14] This list contains all interviewees that make an appearance in Tale III. The interviewees are mentioned according to the act in which they first appear, but they are not restricted to appearing only in that movement.

[15] More information on Cynthia Breazeal may be found in this list under the section heading "Robots/Cyborgs/Immortality."

[16] House of Lords "Minutes of Proceedings, Tuesday, 25th October, 2005," www.parliment.uk http://www.publications.parliament.uk/pa/ld200506/minutes/051025/ldminute.htm (accessed July 8, 2013).

[17] Ibid.

[18] Ruth Deech and Anna Smajdor, *From IVF to Immortality: Controversy in the Era of Reproductive Technology* (New York: Oxford University Press, 2007).

[19] House of Lords Appointments Commission "HOLAC Appointments," http://lordsappointments.independent.gov.uk/appointments-so-far.aspx (accessed July 8, 2013).

[20] Parliament. U.K., "Baroness Deech," http://www.parliament.uk/biographies/lords/baroness-deech/3756 (accessed July 8, 2013).

- Was the University of Oxford's Professor for Public Understanding of Science between 1995 and 2008[22]
- Published *The God Delusion* in 2006.[23] As of 2009, the English-language edition has sold 1.5 million copies and been translated into 31 other languages[24]
- Founder and current leader of the Richard Dawkins Foundation for Reason and Science[25]

*James Watson-*
- Received the Nobel Prize in Physiology or Medicine in 1962 with Francis Crick and Maurice Wilkins[26]
- Head of Human Genome Project at the National Institutes of Health between 1988 and 1992[27]
- President of Cold Spring Harbor Laboratory, New York until 2004. Watson was then appointed chancellor and served until 2007[28]

*Gina Kolata-*
- Writer for *Science* magazine between 1974 and 1987[29]
- Reporter for the *New York Times* since 1987[30]
- Broke the original story of Dolly in the United States in her book[31], *Clone :The Road to Dolly and the Path Ahead* (1997)[32]

## 2. Dolly

*Stephen J. Gould-*
- Paleontologist and hailed as the "twentieth century's most prominent interpreter of evolutionary thought"[33]

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[21] *A to Z of Biologists*, s.v. "Richard Dawkins," (by Lisa Yount), retrieved from Science Online, Facts on File, http://0-www.fofweb.com.maurice.bgsu.edu/Science/default.asp?ItemID=WE40 (accessed July 12, 2013).

[22] University of Oxford, "The Simonyi Professorship," http://www.simonyi.ox.ac.uk/previous-holders-simonyi-professorship (accessed July 8, 2013).

[23] Richard Dawkins, *The God Delusion* (Boston: Houghton Mifflin, 2006).

[24] David Klinghoffer, "Richard Dawkins: A Bibliography," May 1, 2009, Discovery Institute, http://www.discovery.org/a/10291 (accessed July 12, 2013).

[25] Richard Dawkins Foundation for Reason and Science, http://www.richarddawkins.net/home/about (accessed July 12, 2013).

[26] The Official Site of the Nobel Prize, "James Watson - Biographical" from *Nobel Lectures, Physiology or Medicine 1942-1962* Elsevier Publishing Company, Amsterdam, 1964, http://www.nobelprize.org/nobel_prizes/medicine/laureates/1962/watson-bio.html (accessed July 12, 2013).

[27] National Human Genome Research Institute "An Overview of the Human Genome Project," http://www.genome.gov/12011239 (accessed July 8, 2013).

[28] Cold Spring Harbor Laboratory "James D. Watson, Chancellor Emeritus," http://www.cshl.edu/gradschool/Non-Research-Faculty/james-d-watson (accessed July 8, 2013).

[29] *New York Times* Learning Network, "Ask a Reporter: Gina Kolata, Science Reporter," http://www.nytimes.com/learning/students/ask_reporters/kolata.html (accessed July 9, 2013).

[30] Ibid.

[31] Garret Condon, "Clone - It Happened While The World Slept," *Hartford Courant*, January 11, 1998, http://articles.courant.com/1998-01-11/entertainment/9801070060_1_ian-wilmut-cloning-dolly (accessed July 12, 2013).

[32] Gina Kolata, *The Road to Dolly and the Path Ahead* (New York: William Marrow, 1998).

- Publicly known for his 300 monthly essays in *Natural History* magazine (1974-2001)[34]
- Alexander Agassiz Professor of Zoology at Harvard University between 1982 and 2002[35]
- Vincent Astor Visiting Research Professor of Biology at New York University in 1996[36]
- Authored at least two dozen books[37] that discuss various topics including evolutionary theory, natural history, and evolution and religion.
- Died from cancer on May 20, 2002 (aged 60)[38]

*Jaron Lanier*[39]-
- Coined or popularized the term "Virtual Reality"
- Founded VPL Research in the 1980s. Lanier and colleagues developed the first implementation of multi-person virtual worlds using head mounted displays
- While at VPL, Lanier and colleagues also developed the first implementations of virtual reality applications in surgical simulation, vehicle interior prototyping, and virtual sets for television production
- Visiting scholar at Silicon Graphics between 2001 and 2004
- Scholar at Large for Microsoft from 2006 to 2009
- Nominated in 2010 in *Time* magazine's list for the year's top 100 influential people.
- Published *You Are Not a Gadget*[40] in 2010, followed in 2013 by *Who Owns the Future*[41]

## 3. Human Body Machine

*Sherry Turkle-*
- The Abby Rockefeller Mauzé Professor of the Sociology of Science and Technology at MIT[42]

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[33] *Encyclopedia of Life Science*, s.v. "Stephen J. Gould" (by Katherine Cullen), retrieved from Science Online, Facts on File, http://0-www.fofweb.com.maurice.bgsu.edu/activelink2.asp?ItemID=WE40&SID=5&iPin=ELS0107&SingleRecord=True (accessed July 9, 2013).

[34] Steven Rose, "Stephen Jay Gould," *The Guardian*, May 22, 2002, http://www.guardian.co.uk/education/2002/may/22/medicalscience.internationaleducationnews (accessed July 9, 2013).

[35] Ibid.

[36] *Encyclopedia of Life Science*, s.v. "Stephen J. Gould" (by Katherine Cullen), retrieved from Science Online, Facts on File, http://0-www.fofweb.com.maurice.bgsu.edu/activelink2.asp?ItemID=WE40&SID=5&iPin=ELS0107&SingleRecord=True (accessed July 9, 2013).

[37] Ibid.

[38] Steven Rose, "Stephen Jay Gould," *The Guardian*, May 22, 2002, http://www.guardian.co.uk/education/2002/may/22/medicalscience.internationaleducationnews (accessed July 9, 2013).

[39] All information under "Jaron Lanier" may be found at: Brief Biography of Jaron Lanier http://www.jaronlanier.com/general.html (accessed July 9, 2013).

[40] Jaron Lanier, *You Are Not A Gadget: A Manifesto* (New York: Alfred A. Knopf, 2010).

[41] Jaron Lanier, *Who Owns The Future?* (New York: Simon and Schuster, 2013).

[42] Sherry Turkle homepage, http://web.mit.edu/sturkle/www/ (accessed July 11, 2013).

- Director, MIT Initiative on Technology and Self-Program in Science, Technology and Society[43]
- Between 2007 and 2011, Turkle wrote several books, including *Alone Together;*[44] this book examines how humans are demanding more of technology and less from their fellow men

*Rodney Brooks-*
- Former CTO (1990-2008) of IRobot Corp[45]
- Panasonic Professor of Robotics (emeritus) at MIT[46]
- Former director of the MIT Artificial Intelligence Laboratory and the MIT Computer Science and Artificial Intelligence Laboratory (1997-2007)[47]
- Current chairman and chief technical officer for Rethink Robots (formerly Heartland Robotics) in Boston[48]

*Steven Pinker-*
- Nominated for *Time* Magazine's 100 most influential scientists and thinkers in 2004[49]
- Named by *Prospect* as one of "The World's Top 100 Public Intellectuals/World Thinkers and by *Foreign Policy* magazine as a "Top Global Figure" in 2005 and 2008[50]
- Chaired the Usage Panel of the American Heritage Dictionary since 2008[51]
- Nominated to the top list of global thinkers by *Foreign Policy* Magazine in 2010 and 2011[52]
- Currently a Harvard College Professor and the Johnstone Family Professor in the Department of Psychology[53]

*Robert Pollack-*
- Professor of Biological Sciences at Columbia University (1978-)[54]
- Director of the Center for the Study of Science and Religion (1999-)[55]

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[43] Sherry Turkle homepage, http://web.mit.edu/sturkle/www/ (accessed July 11, 2013).

[44] Sherry Turkle, *Alone Together: Why We Expect More From Technology and Less From Each Other* (New York: Basic Books, 2011).

[45] CSAIL (Computer Science and Artificial Intelligence Laboratory) "Rodney Brooks - Roboticist," http://people.csail.mit.edu/brooks/ (accessed July 11, 2013).

[46] Ibid.

[47] Ibid.

[48] Rethink Robotics, "Rod's Vision" under "About," http://www.rethinkrobotics.com/index.php/about/rod-s-vision/ (accessed July 11, 2013).

[49] Harvard University, Department of Psychology, Steven Pinker CV, http://stevenpinker.com/biocv/cv (accessed July 11, 2013).

[50] Ibid.

[51] Harvard University, Department of Psychology, Steven Pinker, http://pinker.wjh.harvard.edu/about/longbio.html (accessed July 11, 2013).

[52] Foreign Policy, "The FP Top 100 Global Thinkers," November 28, 2011, http://www.foreignpolicy.com/articles/2011/11/28/the_fp_top_100_global_thinkers?page=0,36#thinker48 (accessed July 11, 2013).

[53] Harvard University, Department of Psychology, Steven Pinker, http://pinker.wjh.harvard.edu/about/longbio.html (accessed July 11, 2013).

[54] Columbia University, Faculty Biography, "Robert Pollack," http://www.columbia.edu/cu/biology/faculty-data/robert-pollack/faculty.html (accessed July 11, 2013).

- Author of several opinion pieces and reviews on aspects of molecular biology, medical ethics and science education[56]
- Book publications include *The Missing Moment: How the Unconscious Shapes Modern Science* (1999)[57] and *The Faith of Biology and the Biology of Faith: Order, Meaning, and Free Will in Modern Science* (2000)[58]

*Adin Steinsaltz*[59]-
- Teacher, philosopher, social critic, and prolific author of several books and articles that focus upon topics such as science, Jewish religion, and social commentary
- Was in process to complete the entire Hebrew translation and commentary on the Talmud by November 2010
- Awarded the President's Prize in Israel for his scholarship in Talmud in 2012

*Kevin Warwick*[60]-
- Received the Mountbatten Medal (awarded for outstanding contributions to the promotion of electronics or information technology) in 2008
- Awarded the Ellison-Cliffe Medal from the Royal Society of Medicine in 2011
- Currently the Professor of Cybernetics at the University of Reading in the United Kingdom
- Presently leads an ongoing EPSRC[61] sponsored project which uses cultured biological neurons to control a mobile robot platform

## 4. Darwin

*Joshua Getzler*[62]-
- Appointed as a Professor of Law and Legal History at St. Hugh's College at Oxford University in 1993
- Research focuses: Modern Legal History, Law and Economics, Obligations, Equity and Trusts, Property Theory, Law and Finance, and Capital Markets
- Bok Visiting International Professor of Law at the University of Pennsylvania in 2012

## 5. Interlude

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[55] Columbia University, Faculty Biography, "Robert Pollack," http://www.columbia.edu/cu/biology/faculty-data/robert-pollack/faculty.html (accessed July 11, 2013).
[56] Ibid.
[57] Robert Pollack, *The Missing Moment: How the Unconscious Shapes Modern Science* (Boston: Houghton Mifflin, 1999).
[58] Robert Pollack, *The Faith of Biology and The Biology of Faith: Order, Meaning, and Free Will in Modern Medical Science* (New York: Columbia University Press, 2000).
[59] All information for Adin Steinsaltz may be found at: Aleph Society Inc. "About Rabbi Adin Steinsaltz" Biography, http://steinsaltz.org/Biography.php (accessed July 11, 2013).
[60] All information under "Kevin Warwick" may be found at: The University of Reading "Professor Kevin Warwick," http://www.kevinwarwick.com. (accessed July 11, 2013).
[61] EPSRC stands for Engineering and Physical Science Research Council. See http://www.epsrc.ac.uk/Pages/default.aspx (accessed October 16, 2013).
[62] All information under Joshua Getzler may be found at Oxford Law "Joshua Getzler," http://www.law.ox.ac.uk/profile/getzlerj (accessed July 11, 2013).

**6. Robots/Cyborgs/Immortality**

*Ray Kurzweil*[63]-
- Developed the Kurzweil Reading Machine with Bell Labs in 1976, of which the musician Stevie Wonder, was one of the first purchasers
- Started the Kurzweil Music Systems to pursue making programmable synthesizers In 1982
- Awarded the National Medal of Technology in 1999
- Received the half-million dollar Lemelson-MIT prize for a lifetime of developing technologies to help the disabled and enrich the arts in 2001
- Inducted into the National Inventors' Hall of Fame in 2002[64]
- Received the Arthur C. Clarke Lifetime Achievement Award in 2009[65]
- Hired by Google to a full-time position to "work on new projects involving machine learning and language processing" in 2012[66]
- Published his latest book, *How to Create a Mind: The Secret of Human Thought Revealed* in 2012[67]

*Cynthia Breazeal-*
- A pioneer of social robotics and Human Robot interaction[68]
- Wrote *Designing Sociable Robots* in 2002[69]
- Currently an Associate Professor of Media Arts and Sciences at MIT where she founded and directs the Personal Robots Group at the Media Lab[70]
- Recipient of the National Academy of Engineering's Gilbreth Lecture Award and Technology Review's TR35 Award in 2008, and *Time* magazine's Best Inventions of 2008[71]

*Bill Joy-*
- Designed and wrote Berkeley UNIX, the first open source operating system with built-in TCP/IP[72]
- Co-founder and chief scientist of Sun Microsystems between 1982 and 2003[73]

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[63] Information under bullet points 1-4 for Ray Kurzweil may be found at Academy of Achievement "Ray Kurzweil, PH.D.," http://www.achievement.org/autodoc/page/kur1bio-1 (accessed July 11, 2013).

[64] Hall of Fame/ Inventor Profile "Raymond Kurzweil," http://www.invent.org/Hall_Of_Fame/180.html (accessed July 11, 2013).

[65] Kurzweil Accelerating Intelligence "Ray Kurzweil receives Arthur C. Clarke Lifetime Achievement Award," http://www.kurzweilai.net/ray-kurzweil-receives-arthur-c-clarke-lifetime-achievement-award (accessed July 11, 2013).

[66] John Letzing, "Google Hires Famed Futurist Ray Kurzweil" *The Wall Street Journal*, December 13, 2012. (accessed July 11, 2012).

[67] Ray Kurzweil, *How to Create a Mind: The Secret of Human Thought Revealed* (New York: Viking Press, 2012).

[68] Dr. Cynthia Breazeal, Biography, http://web.media.mit.edu/~cynthiab/bio/bio.html (accessed July 11, 2013).

[69] Cynthia Breazeal, *Designing Sociable Robots* (Cambridge, MA: MIT Press, 2002).

[70] Ibid.

[71] Personal Robots Group, MIT Media Lab, http://robotic.media.mit.edu/people/cynthia/cynthia.html (accessed July 11, 2013).

[72] Kleiner, Perkins, Caufield, Byers website "Bill Joy," http://www.kpcb.com/partner/bill-joy (accessed July 11, 2013).

- Holder of over 40 patents[74]
- Named a partner in the venture capital firm Kleiner, Perkins, Caufield, and Byers in 2005[75]

*Marvin Minsky*[76]-
- Pioneer of robotics and telepresence; designed and built some of the first visual scanners, mechanical hands with tactile sensors, and one of the first LOGO "turtles"
- Recipient of the Benjamin Franklin Medal, Franklin Institute in 2001
- Published *The Emotion Machine* in 2006[77]
- Inducted into the IEEE intelligent Systems Artificial Intelligence Hall of Fame in 2011[78]
- Currently the Toshiba Professor of Media Arts and Sciences and professor of electrical engineering and computer science at MIT[79]

*Henri Atlan, M.D.*-
- Research interests include (amongst several others): applications of neural network computing to immunology, physiopathology of autoimmune diseases and AIDS, philosophy and ethics of biology[80]
- Professor Emeritus of Biophysics at the University of Paris and the Director of the Human Biology Research Center and the Department of Medical Biophysics and Nuclear Medicine at the Hebrew University-Hadassah Medical Center[81]
- Member of the French National Committee for Health and Life Sciences[82]
- Currently appointed Director of Studies at *L'École des hautes études en sciences sociales* for 2013-2014[83]

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[73] *Encyclopedia of Computer Science and Technology,* s.v. "Bill Joy" (by Harry Henderson), retrieved from Science Online, Facts on File, http://0-www.fofweb.com.maurice.bgsu.edu/activelink2.asp?ItemID=WE40&SID=5&iPin=ECSRE0284&SingleRecord=True (accessed July 11, 2013).

[74] Kleiner, Perkins, Caufield, Byers website "Bill Joy," http://www.kpcb.com/partner/bill-joy (accessed July 11, 2013).

[75] MIT Enterprise Forum Cambridge "The Grand Challenges of Green Tech Innovation: A Conversation with Bill Joy and Jason Pontin," http://www.mitforumcambridge.org/events/innovation-series-with-technology-visionary-bill-joy-partner-at-kleiner-perkins-caufield-byers-and-founder-and-former-chief-scientist-at-sun-microsystems/ (accessed July 11, 2013).

[76] Information for bullet points 1-3 under Marvin Minsky may be found at MIT Media Lab and MIT AI Lab, "Marvin Minsky" under "Biography," http://web.media.mit.edu/~minsky/minskybiog.html (accessed July 11, 2013).

[77] Marvin Minsky, *The Emotion Machine: Commensense Thinking, Artificial Intelligence, and the Future of the Human Mind* (New York: Simon and Schuster, 2006).

[78] Digital Journal, "IEEE Computer Society Magazine Honors Artificial Intelligence Leaders," http://www.digitaljournal.com/pr/399442 (accessed July 11, 2013).

[79] Ibid.

[80] The Hebrew University of Jerusalem, The Division for Development and Public Relations, "Henri Atlan," http://www.huji.ac.il/dataj/controller/ihoker/MOP-STAFF_LINK?sno=9717574&Save_t= (accessed July 11, 2013).

[81] The Israeli Presidential Conference "Professor Henri Atlan, France," http://2013.presidentconf.org.il/en/speaker/professor-henri-atlan-2/ (accessed July 11, 2013).

[82] Ibid.

[83] *L'École des hautes études en sciences sociales*, "Enseignements de Henri Atlan," http://www.ehess.fr/fr/enseignement/enseignements/2013/enseignant/10/ (accessed July 11, 2013).

This thesis investigates the conflicts and synergies that exist within a twenty-first century artwork that problematizes the issue of society's use and reliance upon technology even as the artwork itself is dependent upon and formed by high-tech. Predominant technology use is a characteristic of new music theater, a broad music genre that encompasses Reich and Korot's label of *Three Tales* as a documentary digital video opera. This genre will be explored in chapter three, but at present, let it suffice that new music theater be understood as "the wide and evolving territory that lies between the opera and the musical."[84] Eric Salzman and Thomas Desi, pioneers in identifying and evaluating the new music theater genre, describe the category this way:

> If music is a technology-driven art form, [new] music theater is perhaps the most technological of all the arts. The arrival of new technologies has typically provided it with a focus, as well as the themes for new work.[85]

Three central areas are examined in this thesis that exemplify the use and significance of technology in *Three Tales*. Chapter one considers the practical ways technology is used as "tool" by examining the use of technological hardware, as well as technology's role as "subject" and "theme." Chapter two examines the active and passive role of technology even as it serves to present messages about itself. Chapter three investigates two opposing aspects of technology in *Three Tales* as "disrupter" and "determiner." The aspect of "disrupter" stems from the paradox that emerges between *Three Tales*'s use of technology and its theme. Technology as "determiner" investigates how technology use serves to determine *Three Tales*'s musical genre as falling within the bounds of new music theater. These general and specific ways that technology is channeled and presented will reveal its significant role in shaping *Three Tales* as a work. It will also help disclose how the technological philosophies of two artists engendered a new subset of artistic expression in the genre of new music theater.

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[84] Eric Salzman and Thomas Desi, *The New Music Theater* (New York: Oxford University Press, 2008), 5.
[85] Salzman and Desi, *The New Music Theater*, 283.

Before proceeding with chapter one, some points of explanation are offered regarding terminology. Tales I, II, and III will henceforth be referred to as "acts."[86] According to *Three Tales*'s libretto, these acts are at times split into parts designated by specific headers (i.e., Cloning, first section of Tale III.) Portions of music and text that have been thus divided by Reich will be labeled as "scenes."[87] In Tale III, Reich's libretto also indicates via dashed lines the division of longer scenes into smaller portions. These smaller portions will be designated as "sections."[88]

Reich and his collaborative partner Beryl Korot were married in May of 1976. Korot has been hailed as an "internationally known video artist"[89] who has created multi-monitor installations shown world-wide.[90] She is best known for her multiple channel works such as *Dachau 1974* and *Text and Commentary* (1977), as well as for her contributions to *The Cave* (1993/2003) and *Three Tales*.

Referring back to the previous definition of *techne*, the term unites technology with the concepts of art, skill, crafts, or principles by which something is achieved or created. The resulting product of these skills, such as a work of art, also falls under the *techne* definition. In *Three Tales*, therefore, a work of art or a technology arises from the merging of human artistic goals with the capabilities of electronic and computer technologies. Technology in a sense, begets technology and presents a portion of technology's historical reality for the spectator to consider. Chapter one begins by examining the essential technological framework of *Three Tales* that serves to build the work on conceptual, physical, intellectual, and thematic levels.

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[86] The libretto of *Three Tales* and Reich's separations of acts into "scenes" and "sections" is available at http://www.stevereich.com/threetales_lib.html (accessed September 27, 2012).

[87] Tale I, Hindenburg, is separated into "scenes" according to Reich's libretto. To maintain consistency, the same term will be used to designate the large, labeled portions of Tales II and III in this thesis.

[88] This occurs in the scenes Human Body Machine, Darwin, and Robots/Cyborgs/Immortality

[89] *Jewish Women, A Comprehensive Historical Encyclopedia,* s.v. "Beryl Korot" (by Carlene Meeker), Jewish Women's Archive: http://jwa.org/encyclopedia/article/korot-beryl (accessed March 13, 2012).

[90] Ibid.

CHAPTER I: "TOOL," "SUBJECT," AND "THEME":

THE TRIUMVIRATE ROLE OF TECHNOLOGY IN *THREE TALES*

*Three Tales* invites an experience of theater that is devoid of several traditional theatrical expectations, such as a logical plot sequence or the existence of actors and set design. In place of these missing components stands the physical functionality of technology in the form of computers and computer software, recording, video, and performance audio and visual technologies. Through these media a documentary theater, or "theater of ideas,"[1] emerges. Within this theater, not only is technology used in its physical aspect, such as it is described above, but the general concept of technology is examined in terms of the interchange that occurs between it and humanity. This thesis examines the centrality of technology in *Three Tales* as it is outlined in Figure 1.1. In point 1, hardware technology is the foundation and causation of *Three Tales*, making its production and performance possible. Point 2 builds upon point 1, in that the level of analyzing technological involvement in *Three Tales* becomes more complex; technology is not evaluated simply for its practical role, but the history of specific technological events themselves function as the subject material of *Three Tales*. Having discussed technology as "subject" in point 2, point 3 moves to consider technology acting as the primary "theme" of *Three Tales*. This theme may be summarized as a warning against an implicit trust in technology and humankind's ability to consistently use it in a judicious manner. This triumvirate role of technology will be more closely examined in the subsequent sections of this chapter.

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[1] The title "theater of ideas" was given to *Three Tales* by Steve Reich and Beryl Korot. See Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*," interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.

**3. Technology as Theme**

*Three Tales*' progressive warning:

Tech. developments of the past have been ill-used and facilitated disastrous events

**2. Technology as Subject**

- Hindenburg

- Nuclear Testing at Bikini Atoll

- Cloning, robotics, cyborgs

**1. Technology as Tool**

- For production of *Three Tales*

- In performance of *Three Tales*
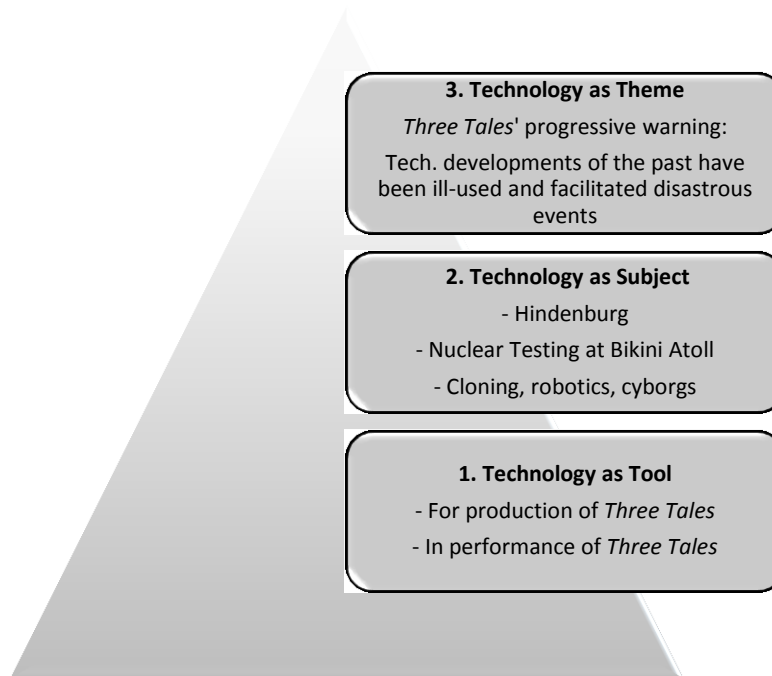
Figure 1.1. The centrality of technology in *Three Tales*

Technology As "Tool"

If *Three Tales* was performed without the aid of computers, computer software, recording, audio or visual display devices, the impressions made upon the spectator would be severely curtailed. Instead of becoming acquainted with information or a plot line that leads into the first act, the spectator would make his acquaintance with a single snare drum, playing rhythms in changing meters. The technological-visual element, however, ensures the spectator a more engaging encounter with the work. Projections introduce the Hindenburg crash via typed newspaper headings and vivid, historical video clips that depict the ruination of the dirigible and the chaos that ensues.

If the audio and visual technologies of *Three Tales* were removed, what would remain is a five member chorus accompanied by a small chamber ensemble of strings, piano, and percussion instruments. Although the music of *Three Tales* helps induce emotion and provides

accompaniment to the work's visual component, it does not relate necessary information that occurs during the three acts. At best, it provides only commentary for the audio and visual technologies that relate the events of the Hindenburg, Bikini Atoll, and Dolly the sheep. *Three Tales* is, therefore, dependent upon computer and recording technologies, as well as digital audio and video technologies to logically and clearly present the events, themes, and viewpoints found within each act.

As was mentioned in the introduction, *Three Tales* has been categorized by Eric Salzman and Thomas Desi as new music theater. Although technology has a long history of being used to augment the experience of musically staged works such as opera, Salzman and Desi relate that recent technologies have so deeply penetrated new music theater that it is now imperative that "technology … be a well-integrated part of a theatrical whole, without standing out on its own."[2] In *Three Tales*, this has been achieved in part by using technology to present technologically-centered ideas; therefore, the functional aspect of technology as performance generator is embedded within the discussion of technology as "subject" and "theme." Secondly, the presentation of *Three Tales* via visual and audio channels that resemble television and radio technologies serve to reduce the spectator's awareness of obtrusive technology use.

The hardware technology required for *Three Tales* in the areas of production and performance is listed below. Figures 1.2 through 1.4 illustrate the technology used in *Three Tales*'s production, followed by Figure 1.5 that represents the technology required in performance. The information was provided by Beryl Korot[3] and Jack Young,[4] both of whom

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[2] Salzman and Desi, *The New Music Theater*, 101.
[3] Beryl Korot answered the author's questions about technology use via email correspondence.
[4] Jack Young, phone interview by Danielle MacRobbie, January 2013. The information is subject to MacRobbie's interpretation and pertains to Figure 1.5.

were contacted directly. Jack Young was *Three Tales*'s projection manager who closely

collaborated with Duncan Edwards, *Three Tales*'s audio manager.

| Initial Interviews | | |
|---|---|---|
| Green Screen (chromakey)* | Sony PD 150 Camera | Neumann Shotgun microphone |
| * Technology which requires a solid color screen behind the video subject as well as green screen software that allows any background image to be inserted for the green screen[5] | | |

Figure 1.2. Technologies required for interviews

| Required Function | | | |
|---|---|---|---|
| Forming the entirety of *Three Tales* visual aspect | Editing Interviews | Painted Stills | Transfer from Mac computer to BetaSP* |
| Technology Used | | | |
| AfterEffects | Final Cut Pro | Photoshop AfterEffects | Final Cut Pro |
| Technology Description | | | |
| **Technology** | AfterEffects | Final Cut Pro | Photoshop |
| **Trademark** | Adobe | Apple | Adobe |
| **Description** | Creates motion and graphic effects Animated Korot's photographic stills | Commercial film and video editing program | Graphics editing program |
| * *Beta SP* - general-purpose video format Used in field work such as electronic news gathering | | | |

Figure 1.3. Visual technologies required for production

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[5] Green screen information by Peter Zunitch, "Green Screen Backgrounds," *Videomaker* 26, no. 8 (2012): 40-45, http://www.videomaker.com/article/15397-green-screen-backgrounds (accessed May 3, 2013).

| Required Function | | | |
|---|---|---|---|
| Vocal Editing | Writing Musical Score | Sonic Manipulation of Speech | Combination of Speech and Music |
| **Technology Used** | | | |
| Digital Performer | Sibelius Composition Program | Program written by IRCAM* (Paris) written in MAX | Reason |
| **Technology Description** | | | |

| Technology | Digital Performer | Sibelius Composition Program | MAX | Reason |
|---|---|---|---|---|
| **Trademark** | Apple | Avid | Cycling '74 | Propellerhead |
| **Description** | Digital Audio Workstation / Sequencer Software | Scorewriter program | Sound manipulations created by computer consultant using the principles of granular synthesis | Computer program designed to emulate a studio rack in which the user can insert devices such as instruments, effects processors, and mixers |
| *Institut de Recherche et Coordination Acoustique/Musique* | | | | |

Figure 1.4. Audio technologies required for production

| Visual Technologies | | |
|---|---|---|
| Visual Screen (Custom - made for tours) 16 ft. 3 in. x 30 ft. 45 ft. from audience | Digital Projectors (20,000 Lumen) | BetaCam SP Tapes (Professional videocassette products) |
| **Audio Technologies** | | |
| Tascam MX 2424 (24 track, 24 bit hard disk recorder) | Headset for conductor (to synchronize musicians with video) | |

Figure 1.5. Technologies required in performance

The visual, audio, and performance tools presented in Figures 1.2 through 1.5 function as the technological substructure of *Three Tales*. Although the theme of addressing technological concerns via the *Hindenburg*, *Bikini*, and *Dolly* acts had to first be conceived for the work to advance, it is reasonable to deduce that the abilities and limitations of technologies in Figures 1.2 through 1.5 played a significant part in shaping *Three Tales*'s final presentation. The information indicates, for example, that Reich and Korot primarily used "on the shelf" programs that were available to the general consumer market. The limitations of such programs may have impressed some constraints upon the artists in terms of time and creative options that would have been non-existent had they taken advantage of audio or visual software technologies used by professional media companies.

Conversely, one example shows how the capabilities of the technologies used by Korot expanded upon *Three Tales*'s final product. Korot reported that she was able to develop new visual techniques in the midst of the creative process of *Three Tales*. With the available technology, Korot developed techniques that helped to "create distance from the documentary source material."[6] She explains:

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[6] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*," interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.

In "Bikini" I turned the live film footage of the islanders into photographic stills, made these stills painterly, and then reanimated them at a different frame rate than the usual 30 frames per second…it places the documentary material in a new context.[7]

The effect allows for the documentary material to be set free of its original boundaries, as well as from the prosaic technique of slow motion.

Figure 1.4 also shows an example of Reich's use of professional audio technologies. At the time of David Allenby's interview with Reich about *Three Tales*, the composer reported that his primary technological interest lay in "making music with digital samplers to playback speech and sound recordings as part of a video opera."[8] Within this digital environment created by the composer, the two new audio effects of slow motion sound and freeze frame sound were inserted. Both effects had been conceived by the composer while composing his tape pieces in the 1960s, but were not yet a viable sonic reality due to technological limitations.[9] By the time of *Three Tales'*s production, the technologies used to generate slow motion and freeze-frame sound existed, but were not available to the average consumer. In order to make his audio-tech dreams a reality, Reich had to pursue his musical conception with the help of *Institut de Recherche et Coordination Acoustique/Musique* (IRCAM). While these audio effects were produced with the help of professional equipment, they make a significant contribution to *Three Tales* in terms of artistic expression and in the communication of messages, a point that will be explored more fully in chapter two.

Ultimately, Figures 1.2 through 1.5 illustrate that technology is deeply rooted at the core of *Three Tales'*s production. We may also note that Reich and Korot's technological choices primarily eschewed professional-line possibilities in favor of what was available for use on the

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[7] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*," interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.
[8] Ibid.
[9] Ibid.

general consumer market. The reasons for this could be several: the artists may have wanted to achieve their work economically or they may have sought the challenge of producing a professional work with tools that were readily available on the market and could be conveniently used at home. Reich and Korot's technology choices may also have indicated their preferred alliance with the average person who is continually affected by technology's influence, rather than with technological powerhouses that can appear to make unilateral decisions about technological development and application.

Although technology initially presents itself conspicuously as "tool" in *Three Tales*, the next two sections of this chapter will analyze its additional functions as "subject" and "theme."

Technology as "Subject"

Hindenburg, the German-manufactured zeppelin, was built in 1936 and made ten transatlantic crossings to the U.S. in commercial service.[10] Over Lakehurst, New Jersey on May 6, 1937, the Hindenburg met its demise as it succumbed to conflagration in which thirty-five out of ninety-seven passengers were killed. Although the initial intention of German engineers was to power the Hindenburg with non-flammable helium, they lacked sufficient resources of the gas to power the zeppelin. The Germans turned to the United States, who was the largest holder of the gas element. A U.S. ban on the export of helium under the Helium Control Act of 1927, however, made the German engineers resort to using hydrogen gas as the Hindenburg's fuel source.[11]

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[10] *Funk and Wagnalls New World Encyclopedia,* s.v. "airship" (by Leslie A. Bryan and Richard Hantula), http://0-web.ebscohost.com.maurice.bgsu.edu/ehost/detail?vid=3&sid=ce5522f9-351b-4ad0-866c-083b239f85e8%40sessionmgr198&hid=120&bdata=JmxvZ2luLmFzcCZzaXRlPWVob3N0LWxpdmUmc2NvcGU9c2l0ZQ%3d%3d#db=funk&AN=AI045300 (accessed January 11, 2013).

[11] Thomas Adam, ed., *Germany and the Americas: Culture, Politics, and History*; vol. 1 (Santa Barbara, CA: ABC-CLIO Inc., 2005), 509.

Some possible, practical reasons for choosing the Hindenburg as a subject may have included the amount of documentary resources available and the event's placement in the twentieth century. The historical event is singular in that it was the "twentieth-century's first transportation disaster captured by newsreel, audio recordings, and still photos."[12] In the days following the tragedy "millions of men and women became witnesses to the Hindenburg disaster…" after the newsreel footage was released to motion-picture theaters.[13] The relatively early occurrence of the event in the twentieth century helps to jumpstart the examination of technology in *Three Tales*.

The subjects of *Three Tales* were also chosen for reasons of interest and artistry. For Reich, the Hindenburg was a powerful image that symbolized humanity's technological ambitions and failures. "The image of an enormous hydrogen-filled zeppelin, with huge swastikas on its tail fins … bursting into flames in New Jersey just before World War II, was unforgettable," the composer told David Allenby.[14] According to music critic Justin Davidson, however, the Hindenburg's creation, rather than its destruction, is the focal point of Act I. Davidson states that the well-documented construction of the Hindenburg in films was intended to "show the awesomeness of many people's labor accumulating into a nation's technical might."[15] Korot recalls being "fascinated" with the Hindenburg scaffolding workers and

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[12] Don Sherman, "In the Air, A Very Public Failure," *New York Times*, April 29, 2007, http://0-search.proquest.com.maurice.bgsu.edu/docview/848220291?accountid=26417 (accessed October 18, 2013).
[13] *New York Times*, "Film of Disaster Viewed by Millions," May 8, 1937, http://0-search.proquest.com.maurice.bgsu.edu/docview/102162073?accountid=26417 (accessed October 18, 2013).
[14] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, Three Tales CD and DVD.
[15] Justin Davidson, review of *Three Tales,* by Steve Reich and Beryl Korot, directed by Bradley Lubman, Brooklyn Academy of Music's Next Wave Festival, "Technological Tales," *Newsday*, October 13, 2002, Entertainment section, http://www.newsday.com/entertainment/fanfare/classical-music-technological-tales-flight-and-fire-bikini-bombs-dolly-sheep-the-20th-century-is-an-epic-in-triumph-and-tragedy-symbols-and-sounds-in-three-tales-a-couple-s-documentary-video-opera-1.335609 (accessed January 11, 2012).

describes them as "dancers in their natural grace and motion."[16] Justin Davidson reports that the

Hindenburg workers "made antlike by the zeppelin's bulk"[17] reminded Reich of the Nibelungen,

the "malevolent but industrious workers"[18] found in Wagner's *Das Rheingold* of the *Ring* cycle.

This comparison motivated the composer to borrow Wagner's anvil percussion segment from

*Das Rheingold*, adjust it slightly and make it the accompaniment to the Hindenburg's

construction scenes.[19]

The atomic testing at Bikini Atoll commenced in March, 1946[20] with repeated testing

occurring until 1958.[21] In this time span, the U.S. military detonated twenty-three atomic and

hydrogen bombs, which resulted in the repeated redistributions of the indigenous people between

the islands within the Marshall Island chain.[22] The new island relocations for the Bikinians, first

to Rongerik and then to Kili, presented one or both problems of food sustainability or poor

weather conditions.[23] According to Jon Nordheimer writing for the *New York Times,* the testing

at Bikini Atoll "sank thousands of World War II warships moored in the lagoon, and destroyed

several islands of the western ring, opening a new deep channel from the ocean into the

lagoon."[24] In 1975, George Allen, part of the legal counsel for the Bikinians, reported that the

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[16] Davidson, review of *Three Tales,* by Steve Reich and Beryl Korot, "Technological Tales," http://www.newsday.com/entertainment/fanfare/classical-music-technological-tales-flight-and-fire-bikini-bombs-dolly-sheep-the-20th-century-is-an-epic-in-triumph-and-tragedy-symbols-and-sounds-in-three-tales-a-couple-s-documentary-video-opera-1.335609 (accessed January 11, 2012).

[17] Davidson, review of *Three Tales,* by Steve Reich and Beryl Korot, "Technological Tales," http://www.newsday.com/entertainment/fanfare/classical-music-technological-tales-flight-and-fire-bikini-bombs-dolly-sheep-the-20th-century-is-an-epic-in-triumph-and-tragedy-symbols-and-sounds-in-three-tales-a-couple-s-documentary-video-opera-1.335609 (accessed January 11, 2012).

[18] Thomas Adam, ed., *Germany and the Americas: Culture, Politics, and History*; vol. 1 (Santa Barbara, CA: ABC-CLIO Inc., 2005), 509.

[19] Ibid.

[20] Jack Niedenthal*, For the Good of Mankind: A History of the Bikini People and Their Islands,* 2nd ed. (n.p.: Micronitor/Bravo Publishers, 2001), 2.

[21] Jon Nordheimer, "29 Years After U.S. Moved Them, Bikini Natives Sue for Safe Return," *New York Times*, October 17, 1975, http://search.proquest.com/docview/120551652?accountid=26417 (accessed January 14, 2013).

[22] Nordheimer, "29 Years After U.S. Moved Them, Bikini Natives Sue for Safe Return," http://search.proquest.com/docview/120551652?accountid=26417 (accessed January 14, 2013).

[23] Ibid.

[24] Ibid.

wreckage was the "largest single source of plutonium pollution in the world."[25] The nuclear

testing stripped all trees off Bikini Atoll and polluted the soil and drinking water, making the

island uninhabitable until 1996.[26]

Reich describes the development of the atomic bomb as the "emblematic technology of

the century,"[27] but both he and Korot chose the lesser-known nuclear weapons event at Bikini

Atoll to stand as the subject material for Act II. Reich was particularly struck that the nuclear

testing "brought together the most ultra-sophisticated hi-tech known to humanity at that time

with some of the least technological human life on the face of the Earth."[28] In similar fashion to

the Hindenburg crash, the testing at Bikini Atoll is well-documented via film and photographic

media. Author Jack Niedenthal reports that "eighteen tons of cinematography equipment and

more than half the world's supply of motion picture film were on hand to record the Able and

Baker detonations, and also the movement of the Bikinians from their atoll."[29] Through

manipulating the live film footage of the displacement of the Bikini peoples, Korot tellingly

illustrates the islander's plight of being forced to relocate. Mr. Kessibuki, the magistrate at Kili,

said that the Bikini people "had no other option but to comply"[30] with the U.S. Navy. "They had

all the power" the magistrate said in Marshallese. "We were in fear."[31]

Unlike the preceding acts which center on specific historical events, Tale III discusses in

subsequent scenes the recent developments in cloning, artificial intelligence, robotics, and

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[25] Nordheimer, "29 Years After U.S. Moved Them, Bikini Natives Sue for Safe Return,"
http://search.proquest.com/docview/120551652?accountid=26417 (accessed January 14, 2013).
[26] *Funk and Wagnalls New Encyclopedia*, s.v. "Bikini," http://0-
web.ebscohost.com.maurice.bgsu.edu/ehost/detail?vid=3&sid=a4dee606-6607-4746-
838b43384cc39238%40sessionmgr104&hid=119&bdata=JmxvZ2luLmFzcCZzaXRlPWVob3N0LWxpdmUmc2Nv
cG9c2l0ZQ%3d%3d#db=funk&AN=BI094500 (accessed January 15, 2013).
[27] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by
David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.
[28] Ibid.
[29] Niedenthal*, For the Good of Mankind: A History of the Bikini People and Their Islands,* 3.
[30] Nordheimer, "29 Years After U.S. Moved Them, Bikini Natives Sue for Safe Return,"
http://search.proquest.com/docview/120551652?accountid=26417 (accessed January 14, 2013).
[31] Ibid.

cyborg technologies. Cloning is defined as "the production of genetically identical organisms (clones) or cells from a parent organism or cell"[32] and is a commonly used reproductive technique. The cloning of amphibians began in the 1950s, and the successful cloning of domestic animals has occurred since the mid-1980s. Cloning techniques were typically applied to embryonic cells because of their ability to mature into many different forms as they multiply. Cloning adult cells was considered impossible because it was believed that once a cell differentiated (i.e., became a muscle cell or blood cell) it could not revert to a totipotent state or one that allows for other types of cell production. Ian Wilmut (b.1944), however, with his team of scientists from the Roslin Institute in Edinburgh, Scotland, altered that supposition. In a significant breakthrough, Wilmut and his team produced a lamb, not from an embryonic cell, but from the cell of an adult. In 1996, Dolly was conceived by process of nuclear transfer[33] using an udder cell from a dead sheep. The creation of Dolly proved that adult cells could be returned to a totipotent state and that the process of embryonic development could be restarted.[34]

Section III of Tale III entitled *Human Body Machine* explores the scientific world of Artificial Intelligence (A.I.). A.I. is defined as "a branch of computer science that is concerned with programs for carrying out tasks that require intelligence when they are carried out by humans."[35] The roots of A.I. sprung from the development of the modern digital computer

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[32] *Dictionary of Ecology and the Environment*, s.v. "cloning" (by Jill Bailey), retrieved from Science Online, Facts on File, http://0-www.fofweb.com.maurice.bgsu.edu/Science/default.asp (accessed July 24, 2012).

[33] Nuclear transfer involves taking a host cell, removing its nucleus, and replacing it with the nucleus of another donor cell to be cloned. See David Elliot's, "Uniqueness, Individuality and Human Cloning," in *Cloning*, ed. Michael Ruse and Aryne Sheppard (New York: Prometheus Books, 2001), 105.

[34] David Elliot, "Uniqueness, Individuality and Human Cloning," in *Cloning*, ed. Michael Ruse and Aryne Sheppard (New York: Prometheus Books, 2001), 105.

[35] *Dictionary of Mathematics*, 4th ed., s.v. "artificial intelligence" (by John Daintith and Richard Rennie), retrieved from Science Online, Facts on File, http://0-www.fofweb.com.maurice.bgsu.edu/Science/default.asp (accessed July 24, 2012).

following World War II.[36] Renowned scientists from the early and mid- twentieth century, such as Alan Turing and Marvin Minsky, as well as current scientists Rodney Brooks and Cynthia Breazeal (also interviewees in Tale III) have made significant advances in the AI field.

The knowledge gained from the achievements in the field of artificial intelligence has been applied to the domain of robotics. The definition of robotics stands as "a discipline concerned with the design and operation of robots. It is… an interdisciplinary pursuit drawing from computer science, electric and mechanical engineering, and even biology."[37] Two interviewees in Tale III, Rodney Brooks, currently the director of the MIT Artificial Intelligence Laboratory, and his student, Cynthia Breazeal, have pursued the creation of robots that exhibit ever-closer likenesses to human beings. The robot Kismet, which appears in Tale III, is the result of Breazeal's work. Kismet is not only capable of imitating human behavior, but is also equipped to display dynamically changing "emotions."[38] Kismet plays the important role of technological host in Tale III, inviting Reich and Korot's audience to encounter and reflect upon the technological advances of the twentieth century.

In the final section of Tale III, scientists prognosticate a world in which AI robots are integrated into society and cyborg equipment allows humans greater mental and physical capabilities than ever before. The word "cyborg" is the shortened term for "cybernetic organism." The cyborg may also be termed a "bionic organism," which indicates both its biological and electrical components. Harry Henderson defines a cyborg as "a human whose nervous, musculoskeletal, or other systems are integrally enhanced or extended through links to

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[36] *Encyclopedia of Computer Science and Technology*, s.v. "artificial intelligence" (by Harry Henderson), retrieved from Science Online, Facts on File, http://0-www.fofweb.com.maurice.bgsu.edu/Science/default.asp (accessed July 25, 2012).

[37] *Encyclopedia of Computer Science and Technology*, s.v. "robotics" (by Harry Henderson), http://0-www.fofweb.com.maurice.bgsu.edu/Science/default.asp (accessed July 25, 2012).

[38] *Encyclopedia of Computer Science and Technology*, s.v. "Brooks, Rodney" (by Harry Henderson), http://0-www.fofweb.com.maurice.bgsu.edu/Science/default.asp (accessed March 29, 2013).

electronic devices."[39] A "true cyborg," according to Henderson, will have devices that are permanently attached and are linked through "sophisticated interactions."[40] An "ultimate"[41] cyborg Henderson describes as having "many such devices, intended not only to correct disabilities, but also to enhance normal human capabilities greatly, or add new abilities entirely."[42]

Reich and Korot report that the ideas in Tale III came to them spontaneously in 1997 when Dolly the sheep was cloned. Reich states that they recognized cloning as a "totally different technology, growing out of medicine and biology, and pointing to what life might be like for the twenty-first century."[43] Korot states that Tale III is "looking within, to ourselves … it symbolized the whole range of issues now brought about by technology to impact our bodies."[44] Tale III makes a distinct contrast between the spectacular results wrought by technology in the Hindenburg and Bikini events with new forms of technology able to penetrate the intimate molecular levels of the human body. *Dolly* and its surrounding concepts of robotics and cyborg technologies also reveal a new perspective on how human life and society may appear in the future.

The subjects of each tale represent a different type of technological feat accomplished in the realms of mechanics, chemistry, physics, and biology. Technology penetrates several areas of human existence, enabling humankind's desires and wishes as well as his understanding and exploration of life.

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[39] *Modern Robotics*, *Milestones in Discovery and Invention*, s.v. "Kevin Warwick extends the human body" (by Harry Henderson), http://0-www.fofweb.com.maurice.bgsu.edu/activelink2.asp?ItemID=WE40&SID=5&iPin=MDIMR0011&SingleRecord=True (accessed July 31, 2012).
[40] Ibid.
[41] Ibid.
[42] Ibid.
[43] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*," interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.
[44] Ibid.

Technology as "Theme"

All subjects of *Three Tales* have been well-documented and each serves to partition the work into early, middle, and end periods of the twentieth century. In addition to this useful function, however, the chosen subjects also share the characteristic of communicating the notion of dread. Each event portrays an alarming or uncertain end with disturbing undertones. In his evaluation of *Three Tales*, music critic Paul Griffiths reports that the work "mounts to a clamor of warning."[45] He notes the growing climax of doom presented by the *Hindenburg* and *Bikini* disaster stories and concludes that "Ms. Korot and Mr. Reich do everything in their formidable power to suggest in *Dolly* a disaster waiting to happen."[46]

The technological subjects of *Three Tales* unite to establish an underlying theme about technology that requires consideration. The theme consists of three layers: humankind's rapid technological growth, the possibilities of detrimentally channeling technological might against humanity, and humankind's failure to consistently make prudent choices regarding the use of new technological developments. In an interview with Julia Wolfe, the ultimate theme of *Three Tales* was specified by Korot: "*Three Tales* is really about human beings and how we deal with the powers that are given to us."[47] A closer look at how the technological events in *Three Tales* illustrate Korot's point will be explored more closely in chapter two, "Technology as Messenger." Before proceeding, however, I will examine Reich's musical roots and his use of technology in previous works, as well as Reich and Korot's motivations for employing

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[45] Paul Griffiths, review of *Three Tales* by Steve Reich and Beryl Korot, directed by Bradley Lubman, Vienna Festival, "An Atomic Bomb, a Zeppelin, a Warning About Genetic Manipulation," *New York Times*, May 14, 2002, Arts Section, http://www.nytimes.com/2002/05/14/arts/music-review-an-atomic-bomb-a-zeppelin-a-warning-about-genetic-manipulation.html (accessed August 25, 2012).

[46] Griffiths, review of *Three Tales*, May 14, 2002, http://www.nytimes.com/2002/05/14/arts/music-review-an-atomic-bomb-a-zeppelin-a-warning-about-genetic-manipulation.html (accessed August 25, 2012).

[47] Steve Reich and Beryl Korot, interview by Julia Wolfe, "Steve Reich and Beryl Korot," *Bomb,* under "Music/Interviews" (Fall 2002), http://bombsite.com/issues/81/articles/2521 (accessed January 16, 2012).

technology to achieve both the production of *Three Tales*, and to serve as its thematic foundation.

Using Technology: Precedent, Opinions, and Motivations

An examination of *Three Tales*'s relationship with technology would not be complete without briefly exploring whether a precedent of technology use exists in Reich's previous compositions. By investigating works that bear close similarities with *Three Tales*, a compositional lineage may be drawn that illustrates how the inspiration behind *Three Tales* was kindled. Before exploring Reich's individual repertoire, however, the composer's musical roots, founded in the style of minimalism, will be discussed.

*Reich's Musical Past: Minimalism and Beyond*

In his youth, Reich's musical interest was piqued by an exposure to an eclectic range of composers and musicians. Reich gravitated towards the musical works of Igor Stravinsky and J. S. Bach, and reveled in the jazz music performed by musicians like Miles Davis, Charlie Parker, and Kenny Clark. Reich's appreciation for jazz music led him to pursue drum studies, and his association with this instrumental family is reflected in many of his compositions which bear a strong, percussive element. In 1958, Reich began studying composition at the Juilliard School of Music with William Bergsma and Vincent Persichetti. His studies culminated in an M.A. in Music from Mills College in 1963, where he worked with Luciano Berio and Darius Milhaud.

At the time of Reich's conservatory training in the 1950s and 1960s, serialism dominated compositional practice. Although this musical style was influential at musical institutions, Reich's own compositional voice ended up largely diverging from expected compositional practices. The composer observed that while he learned how to compose within the parameters

of serialism, the technique never reverberated with his musical personality. In an interview with Edward Strickland, Reich admitted that he grappled with serialist techniques by "repeat[ing] the [serial] row over and over again, so I could sneak some harmony in there."[48] Reich was eventually given some compositional freedom when Berio told him "if you want to write tonal music, go write tonal music."[49]

In the early to mid-1960s, Reich found respite from atonality, serialism, and Cageian indeterminacy by exploring a new musical ideology which, ironically, owed conceptual debts to both of the latter musical practices.[50] Minimalism, as the style was eventually termed, is based upon the concept of reduction, or "the pairing down to a minimum of the materials a composer will use in a given work."[51] According to Robert P. Morgan, several minimalist musical characteristics include:

> Static tonal structures, additive rhythms, textural consistency and transparency, and constant thematic repetition ... [minimalism] finds expression in compositions that unfold slowly over extreme lengths of time, without dramatic incident or developmental goal.[52]

Another characteristic element of minimalism is the idea of a "perceptible, musical process"[53] that is grounded in music unfolding slowly over time. Reich compares a musical process to the concept of a "round or infinite canon,"[54] and it is within such structures that changes in musical ideas can become aurally conspicuous to the listener.

Two important figures credited with founding musical minimalism in its "purest and most rigorous form"[55] are La Monte Young (b. 1935) and Terry Riley (b. 1935). Young began

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[48] Edward Strickland, *American Composers: Dialogues on Contemporary Music* (Bloomington: Indiana University Press, 1991), 39.
[49] Strickland, *American Composers: Dialogues on Contemporary Music*, 39.
[50] K. Robert Schwarz, *Minimalists* (London: Phaidon Press, 1996), 11.
[51] Schwarz, *Minimalists*, 9.
[52] Robert P. Morgan, *Twentieth-Century Music* (New York: W.W. Norton, 1991), 423.
[53] Steve Reich, *Writings on Music*, ed. Paul Hillier, (New York: Oxford University Press, 2002), 34.
[54] Ibid.
[55] Schwarz, *Minimalists*, 12.

experimenting with minimalism in the late 1950s. His musical style gravitated towards using sustained sounds as a framework for his ideas rather than techniques using repetition.[56] Young's works, such as *Trio of Strings* (1958), exemplified an early, minimalist precedent that featured "static harmonies and unchanging dynamic levels over long periods…"[57] as well as explorations in using an economy of pitch material and the gradual unfolding of musical processes.[58]

Another important feature of minimalist music was introduced by Terry Riley's composition, *In C* (1964). It was a highly significant minimalist work of the 1960s, and was considered a "striking alternative to both the rigors of serialism and the randomness of indeterminacy, as well as to the sonic density of texture music."[59] The work is scored for an ensemble that plays fifty-three small, melodic, diatonic fragments. The fragments are played in order, but may be repeated by individual performers according to their preference. *In C* also features another prominent characteristic: the exposure of the "subtactile pulse"[60] or the constant, pervading beat within a composition that sounds underneath its various musical layers of melody, harmony, and counterpoint.[61] Reich suggested using a drummer to help maintain the cohesiveness of the ensemble during an *In C* performance, an idea which morphed into the sounding of a steady pulse played on the upper range of the piano.[62] A strong, rhythmic pulse has also been a predominant characteristic in Reich's own compositions.

Both Riley and Reich experimented with tape loops, but the two composers used disparate techniques which naturally achieved distinctive results. Lucy Davies observes that Riley achieved a density of texture by using two tape recorders to record and replay sounds at the

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[56] *Grove Music Online*, s.v. "minimalism" (by Keith Potter), http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/40603 (accessed July 9. 2013).
[57] Ibid.
[58] Morgan, *Twentieth-Century Music*, 425.
[59] Morgan, *Twentieth-Century Music*, 426.
[60] Ann McCutchan, *The Muse that Sings* (New York: Oxford University Press, 1999), 11.
[61] McCutchan, *The Muse that Sings* (New York: Oxford University Press, 1999), 11.
[62] Strickland, *American Composers: Dialogues on Contemporary Music*, 41.

same time.[63] Reich, however, experimented with the concept of time itself by setting two

identical tape loops at minutely different playback speeds from one another.[64] Reich had

discovered the interest of this musical phenomenon accidentally, when he began to play

recorded, spoken material on two tape machines that were slightly out of sync.[65] He recognized

that he was hearing a "seamless process of making music that changes extremely gradually."[66]

Reich reflected that the sonic technique was closest to a round, but one in which "the rhythmic

distance between the first voice and the second voice is variable."[67] The effect that occurs when

identically sounding units played at slightly different speeds "gradually move apart ('out of

phase') from one another and eventually arrive again in synchronization"[68] became known as

phasing. Reich's compositions for the next seven years continued to delve the possibilities of this

technique.[69]

One of Reich's first compositions spawned from the phasing technique was *It's Gonna

Rain* (1965). Based upon the partial recording of a sermon by a Pentecostal preacher, the

preacher's voice is fed through tape loops, which begin in unison and then diverge into two

voices with a variable time distance between them. Within this new-found technique and the

minimalist community of artists and musicians in the 'downtown' Manhattan scene, Reich

composed more works including *Come Out* (1966), *Piano Phase* (1967), and *Violin Phase*

(1967). *Come Out* (1966) was written using the same phasing methodology as *It's Gonna Rain*,

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[63] *The Oxford Companion to Music*, s.v. "minimalism" (by Lucy Davies), http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/opr/t114/e4427 (accessed July 30, 2013).
[64] Morgan, *Twentieth-Century Music*, 427.
[65] McCutchan, *The Muse that Sings*, 13.
[66] Ibid.
[67] McCutchan, *The Muse that Sings*, 14.
[68] Morgan, *Twentieth-Century Music*, 427.
[69] Keith Potter, "Steve Reich: Thoughts for His Fiftieth Birthday Year," *The Musical Times* 127, no. 1715 (January 1986): 15.

in which a spoken, recorded segment is subjected to tape loop repetitions set at minutely varying playback speeds.

Although *Piano Phase* (1967) and *Violin Phase* (1967) continue to focus on the phasing technique, they illustrate Reich's compositional shift from scoring works for tape to scoring them for instrumentation. *Piano Phase,* for example, is written for two pianists. A musical progression occurs which features the repetition of the same melodic fragment played by both players. During the course of the work, however, the fragment is played in and out of sync between the two pianists as the first player keeps the original tempo, and the second alternates between accelerating and decelerating the musical tempo. In the first progression of this technique, for example, the first player plays the first note of the melodic fragment at the same time as the second pianist plays the second note of the melodic fragment.[70] Then, the two pianists play together at the original tempo. Morgan elucidates that this process "continues until the second piano comes 'all the way around' through twelve phase shifts and is once again in unison with the first."[71] In the work, *Four Organs* (1970), Reich continued to explore phasing and slow musical processes by gradually lengthening the individual notes that make up a specific chord.[72] *Drumming* (1971) scored for nine percussionists and two female vocalists, works with the phasing technique in yet a different way. Morgan states that melodic patterns are constructed by "substituting attacks for rests—or conversely, are broken down by substituting rests for attacks."[73] Paul Griffiths described *Drumming* as a "summation"[74] of Reich's phasing explorations that also "marked a move to music of breadth and sensuousness."[75]

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[70] This process is explained by Morgan. See Morgan, *Twentieth-Century Music*, 427-428.
[71] Morgan, *Twentieth-Century Music*, 428.
[72] Ibid.
[73] Ibid.
[74] *Grove Music Online*, s.v. "Steve Reich" (by Paul Griffiths) http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/23091 (accessed July 30, 2013).
[75] Ibid.

After *Drumming*, Reich gradually re-directed his compositional style away from the pure phasing technique and strict minimalist concepts. Reich's *Clapping Music* (1972), which lies on the cusp of this compositional change, features characteristics of the composer's technical shift. Although the work presents a minimalist ensemble scored for two pairs of hands, Reich's traditional phasing method based on fluctuating tempi is exchanged for the rhythmic explorations observed in *Drumming* that involves the substitution of rests and attacks. Around the mid-1970s, Reich's works were scored for larger ensembles, featured greater harmonic movement and richer sonorities,[76] and explored rhythmically complex interactions between different instrumental or percussive voices. Geoff and Nicola Walker Smith observe that Reich's music after 1968 "began to accommodate a greater element of personal choice and intuition, leading to works of greater coloristic, harmonic, and melodic variety."[77] What followed were works such as *Music for Eighteen Musicians* (1974-1976) and *Music for a Large Ensemble* (1978). The former work, particularly, showcases Reich's experimentation with contrapuntal textures which had gradually come to replace "the simple phasing process while keeping its repetitive frame."[78]

Some of Reich's best known compositions appeared in the 1980s and include *Tehillim* (1981), *Vermont Counterpoint* (1982), *The Desert Music* (1984), *New York Counterpoint* (1985), and *Different Trains* (1988). These works showcase various musical and intellectual developments and influences, including Reich's exploration of Hebrew cantillation, the re-implementation of text and voice in Reich's works, the use of layered rhythms and tempos, and a

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[76] *Grove Music Online*, s.v. "Steve Reich," http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/23091 (accessed July 30, 2013).

[77] Geoff Smith and Nicola Walker Smith, *New Voices: American Composers Talk About Their Music* (Oregon: Amadeus Press, 1995), 211.

[78] *Grove Music Online*, s.v. "Steve Reich," http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/23091 (accessed July 30, 2013).

renewed interest in documentary recorded tape segments which Reich combined with acoustic instruments.

In 1971, Reich and his ensemble made their first European tour, and *Four Organs* became Reich's first piece to be performed in a large concert venue.[79] The work had also been included on the Boston Symphony's 1971 music program and recorded for Deutsche Grammophon in 1974.[80] At this time, however, Reich was not alone in his pursuit of minimalist ideas. In addition to Young, Riley, and Reich, Philip Glass (b. 1937) is also representative of musical minimalism. Glass was a fellow student with Reich at Juilliard and he had arrived on the Manhattan minimalist scene in the mid-to late 1960s. The two musicians had also participated in each other's ensembles until 1971.[81] The music of Glass bears similarities with Reich's in that he makes use of reduced pitch materials, repetition, and a steady pulse.[82] Glass's music, however, was also influenced by the Indian musical techniques he studied in the 1960s, which focused on building "basic melodic units through additive rhythmic processes."[83] Schwarz writes that by the mid-1970s, Reich and Glass "were the commercial hub of the [minimalist] movement."[84] Over time, Reich and Glass's works impacted both concert hall music and rock, and contributed to the ever-increasing number of hybrid musical forms that have particularly emerged in the late twentieth century.[85] By the 1970s, however, the tendency to follow the strict reductionist traits of classic minimalism began to wane in the compositional development of both composers.[86]

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[79] *Grove Music Online*, s.v. "Steve Reich," http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/23091 (accessed July 30, 2013).
[80] Ibid.
[81] *Grove Music Online*, s.v. "Philip Glass" (by Edward Strickland), http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/11262 (accessed July 30, 2013).
[82] Morgan, *Twentieth-Century Music*, 429.
[83] Ibid.
[84] Schwarz, *Minimalists*, 12.
[85] *Grove Music Online*: s.v. "minimalists" (by Keith Potter), http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/40603 (accessed July 9. 2013).
[86] Schwarz, *Minimalists*, 12.

Schwarz observes that this compositional shift was fully seen in Reich and Glass's 1980s compositions, making it illogical at this point to identify either composer as a minimalist.[87]

Several other composers from the United States and Europe have delved into the resources of minimalism shaped by Young, Riley, Reich, and Glass, contouring minimalist fundamentals along the lines of their own creative interests. Perhaps the most renowned composer whose work falls into this category is John Adams (b. 1947). His opera *Nixon in China* (1987) touches especially on the minimalistic tendencies of pulse, tonality, and the intense repetition of small, melodic structures.

Reich, however, has continued to embrace technology as a vital participant in the communication of the artwork, as is exemplified in works such as *The Cave*, *City Life*, *Three Tales*, and more recently, *World Trade Center, 9/11*. As McCutchan observes, Reich's music "continues to marry live performers with technological tools and/or the precise, complex rhythmic processes technology invites."[88] Reich's tendency to monitor society's trends and discuss them in his art via technological tools appears as a persistent, assertive characteristic of the composer's output.

*Technology Precedent*

Since most of Reich's compositions require microphone use, it could be argued that almost all of Reich's works employ technology. If, however, only technologies that help generate a composition are considered, fourteen works out of sixty utilize technologies such as tape or samplers to create a complete performance. Although several of Reich's pieces written for acoustic instruments may also employ an electronic organ or electric guitar, most of Reich's

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[87] Schwarz, *Minimalists*, 12.
[88] McCutchan, *The Muse that Sings*, 11.

repertoire is free of electronic technologies. A list of Reich's pieces that use technology, with the

exception of microphones, is listed in Figure 1.6.[89]

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[89] Information regarding technology use in Reich's works may be found at http://www.stevereich.com/ under "works" (accessed April 2, 2013). *(Please note: site only lists works up to 2009).*

| WORK | REQUIRED TECHNOLOGY (In Performance) |
|---|---|
| *It's Gonna Rain* (1965) | Tape |
| *Come Out* (1966) | Tape |
| *Melodica* (1966) | Tape |
| *Violin Phase* (1967) | Tape (also possible with four violins) |
| *My Name Is* (1967) | Three tape recorders |
| *Electric Counterpoint* (1987) | Tape (also possible with 12 guitars and 2 electric bass guitars) |
| *Different Trains* (1988) | Tape |
| *The Cave* (1990-93) | Sampler, computer keyboard, six screens, video projectors, multi channel synchronized video playback |
| *Typing Music* (1993) | Amplified computer keyboard |
| *City Life* (1995) | Two samplers, three sampling keyboards |
| *Three Tales* (2002) | Pre-recorded video and audio tape, DA 88 digital tape recorder, video projection |
| *Cello Counterpoint* (2003) | Multichannel tape |
| *Double Sextet* (2007) | Pre-recorded tape |
| *WTC 9/11* (2010) | Pre-recorded tape |

Figure 1.6. Reich's works that require technology for composition generation

Of these works listed in Figure 1.6, *Different Trains*, *The Cave*, and *City Life* bear the greatest technological precedent for *Three Tales*. An immediate similarity between the three works is the use of tape and recorded speech melody joined to an instrumental score. Speech melody may be defined as a musical melody that has been derived from the pitches of a spoken phrase. The composer Leoš Janáček (1854-1928) crafted his own theories about speech melody in order to help him achieve a "flexible approach to tonality and to rhythmic and melodic development."[90] Janáček believed that free rhythmic material and the use of speech contours were key in helping him adequately showcase the psychological and dramatic realities of operatic characters.[91] Speech melody was implemented first into Janáček's opera *Jenůfa* (1903), and was later "fully integrated into the musical whole"[92] of operas such as *Kát'a Kabanova* (1921), *The Cunning Little Vixen* (1923), *The Makropulos Affair* (1925), and *From the House of the Dead* (1928).

Speech melody also appealed to Reich beginning in the 1960s. The composer describes the term as a person's "unpremeditated organic expression of the events they lived through."[93] The technique is emphasized in Reich's earliest compositions, *It's Gonna Rain* and *Come Out* both of which are, unsurprisingly, based upon documentary material. Musical interest is generated in these pieces by hearing the melodic shifts of the speaker's voice change as it is subjected to intense repetition and rhythmic phase shifts. After *Come Out*, however, Reich abandoned the use of tape-recorded documentary material until he implemented it once again in *Different Trains*, twenty-two years later.

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[90] Morgan, *Twentieth Century Music*, 117.
[91] Ibid., 118.
[92] Morgan, *Twentieth Century Music*, 119.
[93] Reich, *Writings on Music*, 198.

*Different Trains,* scored for string quartet and tape, uses recorded voices of individuals in the United States and Europe before, during, and immediately after the Second World War. It offers a somber comparison of the function and destinations of trains from 1939 to 1941, running between New York and California with those in Europe that transported Jews to the Nazi death camps. The work's compositional aspect is wedded to its portrayal of past events by doubling the pitches of the spoken voice with the string parts. Reich stated that these new techniques suggested a "way to create opera or music theatre where video images of people are seen while musicians and singers on stage play and/or sing their speech melody."[94] The culmination of these ideas produced Reich's first theater work, *The Cave* which premiered at the Vienna Festival in 1993.

*The Cave* was a five-year project that challenged Reich to "solve the problem of music theater"[95] for himself. The subject focuses upon Israeli, Palestinian, and American interviewees' concepts of the biblical characters Abraham, Sarah, Hagar, Ishmael, and Isaac. The title of the work relates to the Cave of Machpelah in the West Bank city of Hebron. In his discussion of the musical work, Schwarz describes this location as "the supposed burial place of the biblical patriarchs and matriarchs, and is thus sacred to Jews, Muslims, and Christians."[96] *The Cave* employs five large projection screens from which the audience observes Biblical text and witness the response of interviewees to the question, "who for you is Abraham?" The answers behind this question, as Schwarz observed "become[s] the driving force behind an evening of documentary music-video theater."[97] *The Cave* is the technological forerunner of *Three Tales*

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[94] Steve Reich and Beryl Korot, interview by Julia Wolfe, "Steve Reich and Beryl Korot" (Fall 2002), http://bombsite.com/issues/81/articles/2521 (accessed January 16, 2012).
[95] Schwarz, *Minimalists*, 104.
[96] Ibid., 98.
[97] K. Robert Schwarz, "From Antiquity to the Future: *The Cave* Brings Music Theater into the 21st Century," in *The Cave,* by Steve Reich and Beryl Korot (Amersham, UK: Halstan & Co. Ltd., 1993), 16.

and has been described as "a mammoth multichannel video work … requiring an elaborate and expensive apparatus to perform."[98] While *The Cave* and *Three Tales* share the same idea of creating a documentary-like drama with a combination of video interviews and music, the technology used in *The Cave* was less refined than in *Three Tales*. Five screens, for example, are required for the video instead of the one screen required for *Three Tales*. The reduction to one screen was made possible by new software technologies that could combine photography, film, video, and drawing within a single frame. The technological developments that occurred soon after *The Cave* was produced enabled *Three Tales* to be more easily performed in several locations, and generated at less expense.

*Different Trains*, *The Cave*, *City Life*, and *Three Tales* all maintain similar characteristics, such as the use of twentieth-century subject material, an instrumental ensemble, and recorded speech melody that dictates the melodic and harmonic lines within the instrumental score. Of the four works, however, only *The Cave* and *Three Tales* contain a vocal ensemble as well as visual and audio elements, such as video interviews, which move both works into a quasi-dramatic plane. Ultimately, *The Cave* and *Three Tales* offer new alternatives to what staged theatrical works, such as opera, might be like in the future. This is accomplished in part by shifting the spectator's dramatic expectations from engaging with the characters on stage, to experiencing them on screen.[99]

*City Life* varies slightly from *Different Trains* and *The Cave* in that the sampler keyboard is used in live performance to play sound samples, rather than a pre-recorded tape. In a performance of *City Life*, the audience experiences a kaleidoscope of sounds, ranging from

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[98] Davidson, review of *Three Tales* by Steve Reich and Beryl Korot, "Technological Tales," October 13, 2002http://www.newsday.com/entertainment/fanfare/classical-music-technological-tales-flight-and-fire-bikini-bombs-dolly-sheep-the-20th-century-is-an-epic-in-triumph-and-tragedy-symbols-and-sounds-in-three-tales-a-couple-s-documentary-video-opera-1.335609 (accessed January 11, 2012).

[99] Schwarz, "From Antiquity to the Future: *The Cave* Brings Music Theater into the 21st Century," 19.

speech to car horns, subway chimes, heartbeats, boat horns, and fire and police sirens. According to Reich, using the keyboard sampler instead of tape allows for the reintroduction of the small flexibility in tempo that is the "hallmark of live performance."[100] The sampler also "extends the idea of prepared pianos since the sampling keyboards are 'loaded' with sounds."[101] The non-musical sounds, Reich observed, "suggest certain instrumental responses. Thus woodwinds for car horns, bass drum for door slams."[102] These factors, as well as speech melody, create the musical fabric of the five movement work. Although written after *The Cave*, *City Life* shares more commonalities with *Different Trains* in terms of presentation. Nevertheless, technology acts as the performing catalyst to greater and lesser degrees within all four works. The next section evaluates the motivations for using technology specifically in *Three Tales*.

<div align="center">Motivations for Using Technology as "Theme"</div>

While technology has served in a practical function as "subject" in *Three Tales* by presenting predominant technological events and directions of the twentieth century, this chapter will now turn to examine the reasons for emphasizing technology as "theme." According to an interview held by Julia Wolfe, technological development was a point of fascination for both Reich and Korot. Korot revealed that engagement with the subject material of a potential work was a requirement for both artists, and that each had "shared an interest in technology as it has advanced."[103] Even so, the theme of technology in *Three Tales* is not portrayed in a light of favor or even neutrality. Rather, the artists have presented technology that has ended, or may end, in failure and destruction. This purposeful exhibition of technology's negative potentials is

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[100] Steve Reich - "City Life" Composer's Notes, from Boosey and Hawkes, http://www.boosey.com/pages/cr/catalogue/cat_detail.asp?site-lang=en&musicid=5922 (accessed January 18, 2013).
[101] Ibid.
[102] Ibid.
[103] Steve Reich and Beryl Korot, interview by Julia Wolfe, "Steve Reich and Beryl Korot" (Fall 2002), http://bombsite.com/issues/81/articles/2521 (accessed January 16, 2012).

indicative of deeper motivations for presenting technology as "theme." The following points, gathered from *Three Tales*'s information and its style of presentation, help provide an explanation for the connection of technology with destruction and uncertainty. These points are as follows:

A. A belief that impending destruction is imminent, founded upon the basis that humanity's ambitions (for power, or release from human frailty) may be realized through his increasing technological capabilities

B. An acknowledgment that the attitudes of humility or arrogance within humanity affect how technology is used

C. A recognition of humanity's resistance to consistently accept responsibility for his decisions and actions

The idea of Point A, which involves the unification of humanity's ambitions with its technological might, has been explored previously in Reich's composition *Desert Music* (1984). Notice the poetic lines of William Carlos Williams set by Reich in this work: "man has survived hitherto because he was too ignorant to know how to realize his wishes. Now that he can realize them, he must either change them or perish."[104] The same quote, Reich explained to music critic Peter Culshaw, also helped trigger the ideas behind *Three Tales*.[105] In D.J. Hoek's *Steve Reich: A Bio-Bibliography*, the composer explains that he relays humanity's presumptive use of technology and its destructive results in *Three Tales* to warn humanity that its technological prowess has reached an "incendiary point."[106]

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[104] William Carlos Williams, *Poems of William Carlos Williams, Vol. II 1939-1962*, ed. A. Walton Litz and Christopher MacGowan (New York: New Directions Publishing, 1991), 252.
[105] Steve Reich, interview by Peter Culshaw "Apocalyptic Video Opera Revival," February 12, 2010, http://www.theartsdesk.com/new-music/interview-steve-reich-three-tales (accessed September 29, 2012).
[106] Hoek, *Steve Reich: A Bio-Bibliography*, 21.

The sense that *Three Tales* foretells impending calamity for current times occurs gradually through the construction of each tale. In Act I, a mounting sense of doom is not so much advertised by the Hindenburg crash as by the phrases spoken which communicate that technology and progress are the ultimate answer for humankind. The philosophy is exemplified by the comments of a newsman reporting on the Hindenburg crash: "her tragedy will not halt the march of progress." This is followed by a news headline on the screen that states "the German Ambassador said the disaster must not cause the world to lose faith in dirigibles." Reich and Korot admitted that as they reviewed the historical material for *Hindenburg*, their interest was captured by society's "overwhelming conviction that technology was the sure way to progress."[107]

Although the noxious consequences of the atomic bombs in Japan were well-known, the libretto of Tale II proves that society continued to view new technologies as ultimately beneficial, regardless of any detrimental consequences they could create. Note the statements made by a British radio announcer and U.S. Navy officer[108] about the atomic bomb testing at Bikini:

> "Small and remote, it's just the place, they say, for the next atom bomb."
>
> "The United States Government wants to take this destructive power … turn this great destructive power into something for the benefit of all mankind … and that these experiments here at Bikini are the first step in that direction."

Despite well-meant intentions, the weapons test at Bikini yielded useless results, a decimated island, and a needlessly dislocated people. Tales I and II demonstrate, therefore, that

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[107]Steve Reich and Beryl Korot, interview by Julia Wolfe, "Steve Reich and Beryl Korot" (Fall 2002), http://bombsite.com/issues/81/articles/2521 (accessed January 16, 2012).
[108] The British radio announcer is anonymous in *Three Tales*'s libretto. Author Jack Niedenthal has documented the U.S. Navy officer as Commodore Ben H. Wyatt, the military governor of the Marshalls. See Niedenthal, *For the Good of Mankind*, 2.

blind adherence to the view that technology is equitable with benefit, can result in horrific consequences. Tale III follows with the warning that the same convictions and their results can occur again in the new technological arena of bio-technology. Reich has voiced several of his concerns in this area. In *Writings on Music,* the composer discusses his interest that both "potentially useful" and "undoubtedly terrifying" genetic possibilities exist today.[109] In a discussion of Tale III, Reich asks "are we going to continue to sexually reproduce, or are we going to the baby store? This seems to be on the way."[110] The composer also voices his dismay over Marvin Minsky's notions to create immortal humans. Reich mimics Minsky's serious hopes with sarcastic incredulity: "we can get you spare parts for as long as you like—and if that doesn't satisfy you, we can download every thought and emotion you have onto a floppy disc, upload that floppy disc into a robot and then 'you' will live forever. Feel better?"[111] Interviewees in Tale III present a chilling portrayal of human life and hint at an array of bio-technologies that exist:

"We, and all other animals, are machines created by our genes." - Richard Dawkins

"I have no sense of guilt, pulling the plug on any machine." - Robert Pollack

"Cloning is only one of the new biological tricks. Not the one to be most worried about."

- Jaron Lanier

Statements such as these downplay the significance of humans and indicate a belief that technology and knowledge should supersede a respect for human life. The idea of respect is addressed in point B, which emphasizes that humility or arrogance will determine one's consideration for life and guide one's choices that pertain to technology. Reich was constantly

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[109] Reich, *Writings on Music*, ed. Paul Hillier, 240.
[110] Ibid.
[111] Ibid.

reminded of these attitudes "especially during the interviews with scientists," he told Wolfe. "The thought that kept coming back to me was, humility or arrogance?"[112]

Humility and arrogance are painted in *Three Tales* as being the ultimate force that governs decisions related to technology. These aspects which involve humanity's internal character are explained through the insertion of phrases from the two creation stories found in the book of Genesis.[113] Korot cites these accounts as being "absolutely inherent"[114] to *Three Tales* for their revelation of humanity's current conflict involving the use of technological power. According to Reich and Korot's interpretation, the first Genesis account gives humankind dominion over the earth. The second account portrays a human being with more humble tendencies, created from the dust of the ground and charged to serve and keep the Garden of Eden. Korot related to Wolfe that "these two creation stories represent two very different types of human reality present in all of us to varying degrees."[115] The Genesis account in *Three Tales,* therefore, illustrates a metaphorical campaign within the human will that wrestles between the triumph of arrogant dominance and the will to exercise humility.

A spirit of humility often nourishes the acceptance of responsibility. Reich suggests that although humankind possesses dominion over the earth, his dominion must be coupled with responsibility.[116] The theme of responsibility is interwoven throughout *Three Tales* by means both abstract and vivid. In *Hindenburg*, the tense flight and graphic crash of the zeppelin are eventually absorbed to leave the spectator with the sight of the Hindenburg's charred remains

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[112] Steve Reich and Beryl Korot, interview by Julia Wolfe, "Steve Reich and Beryl Korot" (Fall 2002), http://bombsite.com/issues/81/articles/2521 (accessed January 16, 2012).

[113] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD. The idea of two creation stories is Korot's interpretation

[114] Steve Reich and Beryl Korot, interview by Julia Wolfe, "Steve Reich and Beryl Korot" (Fall 2002), http://bombsite.com/issues/81/articles/2521 (accessed January 16, 2012).

[115] Ibid.

[116] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.

and the knowledge that the disaster could have been avoided. The weight of responsibility strikes in *Bikini* as the audience observes the island's inhabitants being forced from their homes to the accompaniment of a relentless detonation countdown. Concerning this scene, author Helena Grehan observes that "the performance asks the spectators how they might respond to the dispossession of one group of people for the comfort and reassurance of others."[117] Tale III presents the culmination for the call of responsibility in *Three Tales*. The Genesis text shifts from humanity's creation to the consequences of irresponsibility should humanity choose to disobey God. Ideals of responsibility are voiced within some interviewees' opinions, while arrogance is effectively broadcasted from the phrases of others. Half-way through the act, interviewee Adin Steinsaltz asks for the first and only time "are you responsible, or not responsible for anything?" Grehan submits that the spectator is asked to consider "how they might fashion their responsibility to the question of the posthuman: the clone, the robot, or the cyborg."[118] The message of Tale III states the challenge for the present day: to deflect the ruinous mistakes of Tales I and II by taking responsibility for the possibilities bio-technologies have to offer, or to bear a set of unknown, perhaps deleterious consequences that occur on an invasively intimate, physical level.

Reich and Korot's choices seem to indicate that their motivations for composing *Three Tales* were governed by concerns over humankind's fate and the compulsion to state humanity's need for responsibility. Reich wisely denies the attempt, however, to relate a single point or idea in *Three Tales* regarding technology. He refuses any titles associated with generating a particular

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[117] Helena Grehan, *Performance, Ethics, and Spectatorship in a Global Age* (New York: Palgrave Macmillan, 2009), 146.
[118] Grehan, *Performance, Ethics, and Spectatorship in a Global Age,* 146.

line of reasoning, such as "politician"[119] or "philosopher"[120] and admitted to Julia Wolfe that presenting *Three Tales* as a warning statement in the political arena had never been considered. During the compositional process, however, Reich did admit to grappling with questions that arose concerning the balance of life, sustainability, and preservation. Reich declared his and Korot's determination to "engage [the] debate"[121] between using technology wisely and the pressures of its accelerated rate of innovation. Such considerations on the behalf of Reich and Korot belie the strength of their convictions for generating *Three Tales*.

Reich and Korot allow history to speak for itself as the events of *Three Tales* unfold. They avoid any explicit expression of their personal views by relying upon historical video and audio and the comments of prominent interviewees. This approach avoids outright bias which would result in the narrowing of *Three Tales*'s audience and arouse a clamor of criticism or skepticism for the artists' approach to their subject. Nevertheless, the technological disasters in Tales I and II as well as the disturbing phrases of prominent interviewees in Tale III, have a viable potential to produce an unsettling viewing experience. As Bruce Weber of the *New York Times* noted, one exits a performance of *Three Tales* "rattling and a little rattled."[122] The several choices made regarding verbal and visual content, the crafting of interviews, and the subtle manipulations of the spoken voice, indicate Reich and Korot's uncompromising intention to raise points for deliberation in *Three Tales*. Ultimately, we may reach two conclusions regarding Reich and Korot's motivations for writing *Three Tales*. First, it appears that an initial fascination with technology's influence in society and its power to achieve good or ill played a compelling

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[119] Nicholas Zurbrugg, *Art, Performance, Media: 31 Interviews* (Minnesota: University of Minnesota Press, 2004), 312.
[120] Zurbrugg, *Art, Performance, Media: 31 Interviews,* 312.
[121] Hoek, *Steve Reich: A Bio-Bibliography*, 22.
[122] Bruce Weber, review of *Three Tales* by Steve Reich and Beryl Korot, "A Fusion Spirit at This Year's Spoleto," *New York Times*, June 5, 2002, http://www.nytimes.com/2002/06/05/theater/critic-s-notebooks-a-fusion-spirit-at-this-year-s-spoleto.html?pagewanted=all&src=pm (accessed July 10, 2013).

role in making it the subject focus of *Three Tales*. Second, the use and direction of technology in the twentieth century generated strong, sustaining reasons for Reich and Korot to create *Three Tales*. In other words, Reich and Korot felt impelled to confront technology use and development that occurs purely for the sake of advancement, or if it is applied without respect to human life, an individual's well-being, or freedom. This central idea in *Three Tales* became a type of moral gospel that was illustrated in the *Hindenburg* and *Bikini* acts, and is hinted at in the formidable bio-tech potentials that were considered by interviewees in *Dolly*. The delivery of this moral message is also single-minded, not deviated from by dabbling in a consideration of the positive characteristics of technology. The artists appear convinced that discussing the perils linked with the blind pursuit of technology drastically outweigh lauding technology's benefits. In their discussion of technology, Reich and Korot have chosen to sacrifice an appearance of neutrality in order to offer a disturbing portrait of what past and future technologies may render if divided from human responsibility or compassion.

Whereas chapter one has established technology as the core framework of *Three Tales*, subsequent chapters will reveal technology's role of communicating with the spectator and the implications technology bears upon *Three Tales* as a musical work. Chapter two will focus specifically upon technology's apparent and subtle uses that conduct "messages" which stimulate the spectator's consideration and reflection over high-tech.

CHAPTER II: THE ROLE OF TECHNOLOGY AS "MESSENGER"

As technology serves in its functional role as "tool," it simultaneously fulfills another role as "messenger" in both practical and symbolic ways. Chapter two investigates two forms that technology assumes for the presentation of messages in *Three Tales*. The first is the "active," practical role of technology in presenting the literal visual and aural messages in *Three Tales*. The "active" role may be defined as the utilization of technological hardware for its intended purpose (i.e., a video recorder taping interviews.) The second analysis examines technology in a "passive" sense as symbolic messages are presented via technological effects. The "passive" role of technology may be defined as using technological hardware to produce random effects designed to enhance an emotional impact, or the portrayal of an idea.

Before proceeding, however, the idea of technology as "messenger" should be differentiated from technology presenting a single message in *Three Tales*. Reich was opposed to the concept of *Three Tales* bearing a "message," as Helen Grehan notes in her evaluation of the work: "Reich suggests the complexity of [*Three Tales*] in the programme notes: 'if I wanted to send a message, I'd send you an email. … If any work of art can be boiled down to an email, then it's trash. Period.'"[1] Instead, *Three Tales* contains layered "messages" that include presenting information, exploring hypothetical situations, and highlighting opposing opinions and philosophies. The richness of *Three Tales* is formed from the mixture of both evident and subtle communiqués which prompt reflection in a variety of areas.

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[1] Reich, Steve, *Three Tales* (2003). Program Notes, Perth International Arts Festival, quoted in Grehan *Performance, Ethics, and Spectatorship in a Global Age,* 146.

The Active Role of Technology as "Messenger"

"Messages" produced via the "active" role of technology refer to those whose subjects consist of documented historical facts, the reactions, opinions, and hypothetical scenarios given by interviewees, and biblical events. These portrayed "messages," delivered by technology's active role, have their original origin in news documentation, from interviewees, and from the Genesis text; they were not originally derived from the minds of *Three Tales*'s creators. Technology use in this "active" sense is produced from the video recording of interviewees to the use of software programs such as *After Effects*, *Photoshop*, and *Digital Performer*. In addition to their active role, such technologies benefit *Three Tales* by offering it a documentary-like credence and they serve to guide the spectator's attention to a desired focus. Examples of this include the visual scrolling of *New York Times* headlines as well as the use of historical video footage, both of which promote the authenticity of *Three Tales*'s subject material. Other active roles include audio and video recordings that make the spectator aware of historical opinions held at the time of each tale, as well as the function of visual projection technologies that relate the message of the Genesis text. Figure 2.1 provides some example types of the messages presented by the "active" role of technology.

| Tale I | |
|---|---|
| **Information** | <u>Visual Message</u>: *New York Times* headline<br>"Hindenburg burns in Lakehurst crash, 21 known dead…(etc.)" |
| **Documentation** | Moltke <u>Interview</u>: Witness to Hindenburg flight |
| **Commentary** | <u>Aural Message</u>:<br>1937 Newsreel announcer speaking of the Hindenburg,<br>"Her tragedy will not halt the march of progress…" |
| Tale II | |
| **Information** | <u>Visual Message</u>: *New York Times* headline<br>"Atom bomb exploded over Bikini fleet. Two ships sunk, nineteen damaged out of seventy three." |
| **Documentation** | <u>Video footage</u> of U.S. Navy officer addressing the Bikini people |
| **Commentary** | <u>Aural Message</u>: British radio announcer<br>"Small and remote, it's just the place, they say, for the next atom bomb." |
| **Genesis Text** | <u>Visual Message</u>:<br>"And God created man in His image and blessed them, and God said to them, 'be fruitful and multiply and fill the earth, and subdue it.'" |
| Tale III | |
| **Information** | <u>Aural Message</u> via interviews with scientists:<br>Discussion of cloning, robotics and cyborg technologies |
| **Documentation** | <u>Video</u> of Roslin Institute Worker and Dolly:<br>"Let me introduce Dolly"<br>"Baaaa"<br><u>Kismet</u> appearances:<br>Symbol of the soon arrival of A.I. life forms |
| **Commentary** | <u>Aural Message</u> via interview: Richard Dawkins:<br>"We and all other animals are machines, created by our genes." |
| **Genesis Text** | <u>Visual Message</u>:<br>"And the Eternal commanded the man, of every tree of the Garden you may freely eat. But the tree of the knowledge of good and evil you must not eat, for on the day you eat it, you will surely die." |

Figure 2.1. Messages presented via the active role of technology

The "active" role of technology fleshes out the structural frame of *Three Tales* for the spectator. While these technologies and the messages they present are necessary for the communication of ideas in *Three Tales*, the same technology is also used in a "passive" role. The foreboding subject material in *Three Tales*, for example, imparted via technology's "active" function, also passively transmits another directive: that of humankind's past abuse of technology and the warning against further abuses occurring in the future. The next section will explore technology's passive use in three areas: through the examination of the tale subjects, the Genesis text, and the specific ways technological effects are used as "messengers" to portray, instigate, or foretell human connection or isolation.

The Passive Expression of "Messages" through Technology

*The Subjects of Three Tales*

The Hindenburg zeppelin was a luxury airship that catered to the rich and powerful, and it proved Germany's increasing might under the Nazi regime. Author John Toland vividly describes the Hindenburg's social scene on October 9, 1936, seventh months previous to the zeppelin's demise:

> Never before, or since, had so many famous names been collected in one aircraft. This human cargo was collectively worth more than four times as much as all the wealthy passengers on the ill-starred maiden voyage of the *Titanic*. Seventy-three leaders of industry and government were aboard.…More than a billion dollars were riding the Hindenburg … Nelson Rockefeller, Winthrop Aldrich, and Thomas McCarter were aboard. Also on hand were three admirals, a general, well-known newsmen, a former governor, assorted government officials and aviation leaders.…[2]

The Hindenburg was crafted in order to serve humankind by providing another type of transportation resource that coddled its occupants in fine comfort and style. Despite the

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[2] John Toland, *The Great Dirigibles: Their Triumphs and Disasters* (Toronto: General Publishing Company, Ltd., 1972), 9-10.

zeppelin's intended purpose and elite clientele, the risk of what could occur from using hydrogen, rather than helium fuel to power its engines, was ultimately ignored. Reich evaluated the incident in an interview with Julia Wolfe: "[The Germans] took every possible precaution with the hydrogen, but, of course, it exploded. The real answer should have been, 'if we can't do it with helium, let's ditch it because it's too dangerous.'"[3] While technological tools actively present the facts of the Hindenburg's construction, conflagration, and deaths of a third of its passengers, their passive role aids in communicating the idea that intense ambition results in lethal consequences.

Tale II examines the most deadly weapons technology on earth as tested on Bikini Atoll. Reich described to Wolfe the discussions that occurred between the Navy and scientific consultants: "the scientists told them that … the radioactivity that would normally be released in the air would get trapped in the water. The water would shoot up and then fall over the target ships, and when they would try to measure what was going on with these ships, they wouldn't be able to get close to them because they'd be glowing with radioactivity. That's exactly what happened; the test was a boondoggle."[4] After viewing the results of the Hindenburg project in Tale I followed by the U.S. Navy's detonation of atomic bombs underwater, the impression is made that important technological undertakings are far from being free of faulty rationale. Through the subject succession of Tales I and II, technology relates a theme of human arrogance that results in the loss of life, disruption, and environmental decimation. The weapons testing at Bikini is also a pregnant example of this theme, as it will most likely remind the spectator of the atomic bombs dropped on Japan in World War II. Thus, technology in Tale II silently illustrates

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[3] Steve Reich and Beryl Korot, interview by Julia Wolfe, "Steve Reich and Beryl Korot" (Fall 2002), http://bombsite.com/issues/81/articles/2521 (accessed January 16, 2012).
[4] Ibid.

three horrific accomplishments of atomic power: the deaths of thousands, the displacement of a people, and the destruction of a habitable environment.

Tale III is set apart from the previous two tales due to the unknown outcomes and impact of the technologies it portrays. The impact of cloning, robotics, and cyborg technologies upon humankind is unforeseeable, and objectively, such technologies contain equal potentials for good or evil. Within the context of *Three Tales*, however, the technologies of Tale III are cast in a pre-determined, ill-omened light due to the several alarming premonitions of the interviewees. Notice the examples given below:

Sherry Turkle - "Preparing for a new kind of cyborg consciousness."

Marvin Minsky - "Intelligent robots will be ah, our replacement."

Rodney Brooks - "I don't think robots are going to take over from us - because there isn't going to be an 'us' - because we are starting to bring technology into our bodies."

Richard Dawkins - "Once upon a time there was carbon based life, and it gave over to, silicon-based life."

In Tale III, technology's active function gives the spectator access to the thoughts of modern scientists about current and future technologies, while its passive function channels a menacing message that predicts an impending transformation of the biological human into a more technological construct.

The order of Tales I and II presents a progressive increase in destruction as technological knowledge increases, insinuating that ever numerous afflictions will be the outcome of the technologies listed in Tale III. Ultimately, technology's passive role of presenting the subjects of *Three Tales* communicates the horrors of a dangerous imbalance: that human hubris has not rescinded, even as new technologies with their potential boons and ills have exponentially

increased. Technology serves to present the "message" that the past bodes ill for the future as technology is continually exploited for the sake of experimentation, individual or national aggrandizement, or the destruction of life.

*Presentation of the Genesis Text*

Technology functions actively in order to present the Genesis text in readable form for the spectator. The active presentation of these events, however, instigates the passive diffusion of other messages. An investigation into the nature of these messages first requires an examination into the existence and significance of the Genesis text in *Three Tales*.

Graham Lack observed that "central to [*Three Tales*], and obviously central to these artists' beliefs, is the account in Genesis of the creation."[5] Although born to Jewish parents, Reich conceded that he was raised as a "reformist," or non-practicing Jew. The composer was involved in Eastern religions and meditation practices in the 1960s but returned to his Jewish roots in 1974. At that time, Reich began attending the Reform Synagogue in New York City and studied biblical Hebrew and Jewish beliefs. Today, both Reich and Korot honor their religious and cultural heritage and regularly attend synagogue. In an interview with *New York Times* reviewer Adam Shatz, Reich explained, "I have a religious view of life. If you have no guidance other than your whims and desires, you're living in a completely individual way. You're denying human history."[6] The Genesis text, therefore, holds personal religious significance for both Reich and Korot. Its message portrays two primary occurrences that involve humanity: the creation of humankind and God's command given to Adam and Eve not to eat of the Tree of

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[5] Graham Lack, "Imitations of Mortality: Steve Reich and Beryl Korot's *Three Tales* in Vienna," *Tempo* 221 (July 2002): 42.

[6] Adam Shatz, review of *Three Tales* by Steve Reich and Beryl Korot, Howard Gilman Opera House, Brooklyn Academy of Music, "A Fighting Man (and Woman's) Work," *New York Times*, October 13, 2002, Arts, http://www.nytimes.com/2002/10/13/arts/music-a-fighting-man-s-and-woman-s-work.html?pagewanted=all&src=pm (accessed June 26, 2013).

Knowledge. These events carry symbolic weight in *Three Tales* and include an examination of humanity's inner self, technology, and the idea of haste.

The Genesis text makes no appearance in Tale I; humanity's pursuit of technology runs unchecked, as it were, free of moral conscience. In Tale II, it is as if the devastation caused by the atomic bomb at Bikini evokes the presentation of the Genesis text. The text then proceeds to literally interrupt the flow of events in Tales II and III. In both tales, the text dominates the screen, exclusively appearing in white letters on a black background, its words and phrases inserted between action shots or interviews. The account of humanity's creation runs the length of Tale II and, as was previously discussed, serves to illustrate humanity's characteristics of arrogance and humility that are engaged in a struggle for power. God's command not to eat from the Tree of Knowledge is observed only in Tale III. The Genesis text within both tales points to the conclusion that humanity's current struggles are the result of coupling humankind's potentially dangerous ambitions with the power of knowledge.

The command of God that forbade eating from the Tree of Knowledge plays a significant role, both religiously and symbolically, in Tales II and III. Although the command does not appear until Tale III, the Tree is referenced in the libretto of Tale II:

> Section: *In the Air 2*: (In reference to the detonation of the atomic bomb)
> Tenors sing text from the *New York Times*: "Then it became a giant tree … a giant tree."

> Section: *In the Air 3* - Tenors sing: "Then it became a giant tree."
> Later - "Bearing invisible fruits … fruits of the Tree of Knowledge."

The parallels drawn between the atomic tests at Bikini and the Tree of Knowledge stem from the observations of the *New York Times* chief reporter who observed the testing events. He wrote of

"seeing a huge tree—a Tree of Knowledge—with alpha and beta particle fruits."[7] In an

interview, Reich explained that "the atomic bomb … could destroy the planet, and that conjured

up religious imagery."[8] The composer also referred to Robert Oppenheimer's quote after

successfully building the atomic bomb: "now I am become death, the destroyer of worlds."[9]

These reactions to nuclear weapons technology prompted Reich and Korot to offer their own

viewpoints in *Three Tales* by "present[ing] parts of our own biblical tradition … as a way of

gaining a bit more perspective on the situation."[10]

The entire text involving the Tree of Knowledge is presented fully in Tale III, its words

interwoven between interviewees discussing the most current and emerging technologies.

Grehan notes the significance of placing the command not to eat the forbidden fruit in the

context of Tale III. She interprets the text's placement as:

> … Reflecting the potential hubris involved in our becoming too confident with genetic
> experimentation. While the creation of a clone in Dolly the sheep may seem a significant
> advance in technology … it also signifies a precipice over the edge of which the future is
> uncertain and potentially lethal.[11]

Grehan's interpretation of the Genesis text carries merit, but is somewhat limited. I believe it

reasonable to think that the Genesis text may be applied towards all the technologies considered

in Tale III including cloning, the crafting of intelligent robots, and the development of cyborg

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[7] William L. Laurence, "Blast Biggest Yet: As First Underwater Atomic Bomb Exploded," *New York Times*, July 25, 1946, http://0-search.proquest.com.maurice.bgsu.edu/hnpnewyorktimes/docview/107420492/pageview/13DC9E4DD355A171341/1?accountid=26417 (accessed May 2, 2013).

[8] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.

[9] Oppenheimer created this quote based off a line from the Hindu scripture, Bhagavad-Gita. It comes from Canto XI verse 32 that states "Death am I, and my present task destruction." Arthur W. Ryder, trans., *The Bhagavad-Gita* (Chicago: University of Chicago Press, 1929), 88. For information about Oppenheimer's rendition of this quote, see Shri Purohit Swami, trans., and Kendra Crossen Burroughs, annotator, *Bhagvad Gita Annotated & Explained* (Woodstock, VT: Skylight Paths Publishing, 2001), 92-93.

[10] Steve Reich, interview by Peter Culshaw, "Apocalyptic Video Opera Revival," February 12, 2010, http://www.theartsdesk.com/new-music/interview-steve-reich-three-tales (accessed September 29, 2012).

[11] Grehan, *Performance, Ethics and Spectatorship in a Global Age*, 157.

technologies. This interpretation may be supported for reasons that the text regarding the Tree is listed under the scene *Human Body Machine* (as opposed to *Dolly* or *Cloning*) and a last reference is made to it at the conclusion of the tale. This implies that the relevance of the command and its consequences is directed towards all topics discussed in the tale. Ultimately, the Genesis text does not simply function as a historical reminder or religious icon; its power as being derived from God, appeals to humanity as a spiritual measuring rod whereby humankind may assess its current and future technological course.

The last notion surrounding the Tree of Knowledge is the concept of haste. Graham Lack writes that "Adam and his hasty repast… is the key to any understanding of *Three Tales*."[12] The critic refers to phrases spoken at the end of Tale III, spoken by Deech and Steinsaltz:

> *Cyborgs Robots/Immortality*: Ruth Deech - "Here we are … under the Tree."
> *Cyborgs/Robots Immortality*: Adin Steinsaltz - "The sin of Adam in eating … he was too hasty."

The idea of haste in connection to technology, or using technology thoughtlessly, is the last subtext bound to the Genesis text. The concept of Adam and Eve's haste, although not explicitly stated in the Genesis text, is amplified in the Jewish book of Zohar. Reich explained to Lack:

> Adam and Eve were created on the sixth day and the Zohar says they ate the fruit just two hours before sundown when the Sabbath begins. If they had waited … the forbidden fruit would have been permitted when the context was right.[13]

Adam and Eve's impetuous choice led to their ruin, breaking their relationship with God and condemning them to physical death.

Korot parallels the idea of humanity's haste with modern society's rapid development of technologies. She remarked to Allenby:

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[12] Lack, "Imitations of Mortality," 42.
[13] Ibid., 42-43.

> When tools develop and become upgraded so quickly, offer so much accessibility, their physical and social impact on our lives is transformative, and we have very little say over this impact. … Are we in control? … Bill Joy suggests we have no brakes. Adin Steinsaltz says "the sin of Adam, in eating … he was too hasty."[14]

Genesis 2:16-17 states God's command not to eat of the Tree of Knowledge for the reason that it will result in the death of Adam and Eve. Genesis 3:5-7 states the devil's description of the Tree of Knowledge, as well as humanity's reasons for eating of it:

> For God knows that in the day you eat from it your eyes will be opened and you will be like God, knowing good and evil.
> When the woman saw that the tree was good for food, and that is was a delight to the eyes, and that the tree was desirable to make one wise, she took from its fruit and ate; and she gave also to her husband with her, and he ate.[15]

The Tree of Knowledge and humanity's consumption of its fruit in *Three Tales* symbolizes humanity's current avidity for knowledge and his pursuit of it in the form of technology. Technology looks attractive as humanity's latest developmental success and often carries the promise of greater knowledge and power. The speed of technological advancement and humankind's desire and acquirement for technology refer to humanity's haste in eating from the Tree of Knowledge. The inclusion of the Genesis text suggests that humankind's *modus operandi* has not altered since creation to the present day.

The Genesis text is far from being a casual reference to mysticism or religion in an artistic work. It serves as an outlet for Reich and Korot's own beliefs while offering an example of humanity's tendency to pursue ambition and the power of knowledge at any cost. The consideration of haste pertaining to Adam and Eve's sin neatly parallels the rapidity at which new technologies are demanded and developed in the twenty-first century. After having examined the subtexts behind the subject events and the Genesis text, the next section will

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[14] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.
[15] Genesis 3:5-7 (New American Standard Version).

consider the way technology is used in *Three Tales* to promote "messages" that imply human connectedness or isolation to the spectator.

Two Subtexts Created Through Technology Use: Human Connectedness and Isolation

In *Three Tales*, visual and audio technologies and the character of Kismet the robot are channeled in ways that communicate messages of human connectedness and/or isolation. Human connectedness will be defined here in terms of how the spectator relates to other human subjects in *Three Tales*, to his/her own humanity, and how he/she connects with human culture and events portrayed in *Three Tales*. The concept of isolation will thus be defined as what divides the spectator from these previously stated points. The ways in which visual technologies, sound technologies, and Kismet prompt messages of human connectedness and/or isolation will be discussed in individual sections below.

*Causation of Connectedness or Isolation Through Visual Technologies*

Video technology in *Three Tales* has much to offer in terms of promoting human connection. Historical video footage depicts human cultures, philosophies, and humankind's past decisions and choices for the spectator. *Hindenburg*, for example, illustrates an event of early twentieth-century Western society. The act vividly presents rescue workers' attempts to deal with the burning wreckage. Korot's manipulations of photos and video footage afford the spectator a more detailed observation of the scene. One example involves an emergency crew member who runs towards the Hindenburg while lugging a portable water hydrant. Korot staggers the man's movement and repeats his scene entrance several times. This facilitates the observation of the man's tense body as he strains towards the zeppelin and helps to arouse supportive sympathies for the emergency worker's goal to quell the sea of flames.

In Tale II, the spectator becomes acquainted with the faces of Navy and Air Force crew members who execute the atomic bomb tests. It is clear that the intense concentration of the officers and crew for their mission supplants their ability to reflect over what will occur to the islander's homeland and way of life. Footage of the displaced Bikini people is shown in contrast to the U.S. military personnel. The islanders' faces reflect resignation; although their expressions initially present a detached impression, a slight sadness also appears to accompany the people as they complete their relocation duties. Korot represents the scene in a quasi-impressionistic way. While the "painterly" technique and new animation speed intermittently clears so that facial expressions may be observed, the faces and physical outlines of the islanders are typically subjected to a gentle blurring.[16] The spectator is left to consider the Bikinians' response to leaving their homes by observing their bent postures, downcast heads, and spontaneous waves of farewell to their home island as they sail away. That the Bikinians' images are visually obscured implies that the cultural group was considered by the U.S. government to be inconsequential when compared to its own goals.

In Tale III, interviews, rather than historical photos and video footage, provide a bridge for human connection. These television-like encounters permit connection between the spectator and interviewee by circumventing communication hindrances such as distance or scheduling conflicts. Video technology grants an interviewee connection with thousands of individuals, enabling the expression of opinions and ideas with little inconvenience to either the interviewee or the spectator. Televised interviews allow the spectator to know the interviewee by his/her face and voice, experience their personality, and become acquainted with the interviewee's beliefs and emotions associated with various topics.

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[16] To review Korot's graphic effects that she crafted for Bikini, refer to chapter 1, page 20, footnote number 7.

Although several examples of this type of connection abound in Tale III, two stand out in particular. The first occurs with scholar and scientist, Richard Dawkins. Dawkins's numerous interviews showcase stoic facial features, a British accent, and an intelligent, logic-driven personality. During a discussion of human cloning, however, Dawkins's typical characteristics are momentarily changed. In this instance, he says in *Dolly*, section 2: "It would be a truly riveting, fascinating experience." In the course of speaking, Dawkins smiles faintly (smiles being a rarity in his interviews), and delivers his line with spontaneous sincerity and energy, as opposed to other times when his expression is serious and he reads about a topic presumably from one of his own texts. Dawkins's interviews allow the spectator to observe his personality and reactions in various topical contexts.

The second example occurs with researcher Cynthia Breazeal who introduces her robot Kismet. Breazeal states in *Robots/Cyborgs/Immortality* section 2: "Kismet is my baby … building a baby the hard way … How do you play the role of evolution?" The scientist's personality is vividly present through her lively vocal inflections, facial expressions, and laughter. Breazeal's interviews often communicate a warmth, intelligence, and modest pride over her creation of Kismet. Interviews such as these with Dawkins and Breazeal allow the spectator to gain a familiarity with the scientists' personalities in Tale III. A link is forged from spectator to interviewee via verbal communication and body language. These tools inform the spectator of who the interviewee is, and how to interpret and summarize the interviewee's behavior and beliefs.

While video technology and the manipulation of recorded material can serve to unite the spectator with the reactions, personalities, and behaviors of interviewees, the same methods can also create an inherent distance between the spectator and the events on stage. Let us consider,

for example, the comparison between a video-taped interviewee and an actor who assumes the lead character within a drama. While the invisible fourth wall of theater separates both the interviewee and the actor from the spectator, an advantage lies with the actor should he choose to connect with his audience. The actor maintains the possibility to interact with the audience at any time by directly addressing them, or by inciting their emotions through impromptu text or antics. Conversely, if the interviewees in *Three Tales* have not addressed their audience directly on video, they are permanently blocked from doing so once the recording is complete. The spectator, who observes such an interview in which the fourth wall is maintained, is innately aware of a loss of human connection. Disconnectedness occurs because events of the present are removed to the past, and the possibility vanishes of having a spontaneous connection in real time with a live audience. Instead, it is understood by the spectator that the interviewees in *Three Tales* are responding to their own interviewer whose body, statements, and questions are hidden from the observer. These factors of distance illustrate that the presence of technology can also communicate a message of isolation.

Another example that transmits the concept of isolation is found in the implementation of visual effects. These effects work to disorient the spectator from the societal or human connections that do exist in *Three Tales*. One instance of this involves the style of interview presentations. Familiar expectations typically associated with news or talk show interviews, such as chatty dialogue, stable background material, and video shots of interviewees, are replaced by visually involved or distorted interview segments. In Tale III, animated background graphics constantly shift to support the conversation theme; cell division occurs, DNA code sequences un-scroll, or organisms undergo evolution. Even more unusual are the visual changes that occur to the interviewees themselves. Interviewees' bodies are often intermittently frozen in mid-sentence

and then unfrozen to complete their thought. Occasionally after the delivery of a phrase, an interviewee's identity is inked out to appear as a silhouette. The silhouette may be copied on the screen multiple times and particular body motions may be manipulated so that they constantly repeat for a specific duration. These effects which cause the interviews to appear more theatrical than informational, infer that the humanity of the interviewees is ultimately at the disposal of technology.

Video footage does provide the spectator with powerful ways to connect with interviewees; faces and behaviors are etched into the memory, and the ear captures the colorful palate of tones and inflections of the human voice. Conversely, technology in *Three Tales* often causes an elimination of direct human involvement and is even used at times to erase aspects of human identity. The next section will continue to explore how isolation is communicated in *Three Tales* via sonic technologies applied to the human voice. Examples from Tales II and III will reveal the ways vocal inflections are highlighted and distorted, and how the meaning of spoken phrases is influenced by sonic technologies.

*Causation of Connectedness or Isolation Through Sound Technologies*

Just as visual technologies work in an active and passive sense to unite or divide the spectator from their own humanity, human interactions, or interactions with culture, so also this phenomenon occurs in the realm of sound. Several instances exist in which technological manipulations alter the voice and consequently shape a message or image about humanity or human society. The first example illustrates how the meaning of a phrase is transformed after technology has been applied. In Act II, under the section *The Atoll 2*, the announcer states "small and remote, it's just the place, they say, for the next atom bomb." Spoken in real time, the British announcer's words express the simple relay of factual information. Seconds later, the inflections

in the announcer's voice are transformed as a result of "slow motion sound."[17] Reich defines the

technique as "slowing down a speaker or other sound without changing pitch or timbre."[18] The

two examples of the announcer's phrase in real time (mm. 304-306) and subjected to slow

motion sound (SMS) (mm. 307-311) are exhibited in Examples 2.1 and 2.2.[19]

Example 2.1. *Three Tales*, Scene V *The Atoll - 2*, Act II mm. 265-267 spoken phrase "small and remote" occurring in real time



Example 2.2. *Three Tales*, Scene V *The Atoll - 2*, Act II mm. 307-311 "small and remote" subjected to slow motion sound



Writing about this particular phrase, Graham Lack observes:

> The journalist sounds as if he really believes this to be true, although the speech cadences of British English in the 1940s were obviously markedly different from those of today. Either Reich or Korot, or both, have a keen ear for dialogue; this snippet of text would seem far less cynical were it not for the two words placed between the commas.[20]

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[17] See Chapter One, page 20.

[18] Ibid.

[19] Unless otherwise noted, all examples come from: Steve Reich, "*Three Tales*: Hindenburg, Bikini, Dolly" (New York: Boosey & Hawkes Inc., 2002), http://www.boosey.com/cr/perusals/score.asp?id=1330 (accessed September 14, 2013).

[20] Lack, "Imitations of Mortality," 42.

Under the microscope of slow motion sound (SMS), the announcer's inflections drip with pomposity, although it should be noted that it is unknown whether the announcer himself or a script writer is the originator of the phrase. In any case, the phrase bears a subtext of racial superiority, which would be difficult for the announcer to avoid in his vocal inflections. The technique of SMS highlights an underlying assent to the acceptability of seizing the homeland of a people perceived as being technologically underdeveloped. Slow motion sound in this example connects the spectator to humanity in two ways: first it provides a general example of the attitudes and philosophy held by mid-twentieth century America towards underrepresented cultural groups, and second, the vocal inflections reveal the view that the possessor of power is justified to do with it what he/she wills, therewith reminding the spectator of the human bent to obtain and demonstrate power.

The next example is found in Tale III, *Robots/Cyborgs/Immortality.* Rod Brooks predicts that humans will eventually become robot-like as a result of incorporating technology into their physical makeup. Cynthia Breazeal's response to Brooks is the second instance of technology's interplay with the human voice:

Tale III - *Robots/Cyborgs/Immortality*: Cynthia Breazeal - "This, gives me pause." Repetition or the "looping" technique, rather than slow motion sound, is used to isolate the phrase. Its repetition plays for twenty-one measures without interference from other interviewees. This gives the spectator time to evaluate Breazeal's vocal inflections and interpret her viewpoint about the topic. Example 2.3 shows Breazeal's initial spoken phrase (shared between the upper and lower staves, mm. 1130-1132) followed by its repetition (mm. 1134-1136).

Example 2.3. *Three Tales*, Section 4, Scene VI *Robots/Cyborgs/Immortality*, Act III mm. 1130-1136 Breazeal's phrase "This gives me pause" subjected to looping[21]



Breazeal's phrase is highlighted through technological means that draw attention to the

scientist's feelings of anxiety. On video, a mirror image of Breazeal is produced and her two

likenesses share speaking the phrase "This gives me pause." The dual image and shared text

delivery focuses the spectator upon Breazeal's worried facial expression. The subject of the

phrase, embodied by the word "this" begins on a high pitch. A pause occurs before Breazeal

moves forward with her thought.[22] The evident concern on Breazeal's face, initial high pitch of

the phrase, and momentary pause before speaking are all indications of uncertainty and

apprehension. Reich capitalizes upon this phrase and repeats it for 129 measures. The composer

also uses Breazeal's phrase to accompany the predictions of Marvin Minsky and Raymond

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[21] Example 2.3 includes six different parts that sound between measures 1130 and 1136. Breazeal's "This…" is spoken in the musical score according to the notation seen in pre-recorded voice and vibraphone I and II parts. That is to say that the spoken, moving, repeated voice is not given its own musical staff, but shares its presentation with the pre-recorded voice or vibraphones I and II, or both, in the *Three Tales*'s score.

[22] Notice the eighth-note rests that occur in the pre-recorded voice and vibraphone 1 and 2 parts.

Kurzweil (see Example 2.4). Breazeal's repetitive phrase seems to sound an alarm over Minsky

and Kurzweil's technological aspirations.

> Tale III - *Robots/Cyborgs/Immortality*:
>
> Marvin Minsky: "You go and buy this module in the Mind Store—and have it connected to your brain—and then you do four or five part counterpoint."
>
> Raymond Kurzweil: "If I scan your brain—download that information—I'll have a little you— right here in my personal computer."
>
> Minsky: "No reason people should put up with death—start redesigning ourselves— I think we'll turn into—something quite different."

Example 2.4. *Three Tales*, Section 4, Scene VI *Robots/Cyborgs/Immortality*, Act III mm. 1149-1154 Breazeal's repeated phrase "This gives me pause" united with Marvin Minsky's phrase "You go and buy this module"[23]



The sonic and visual repetition of Breazeal's words and facial features facilitates a

connection between the spectator and Minsky's ambition to unify technological devices with the

human body. As a result of the intense repetition of Breazeal's phrase, spectators can easily

detect and react to her unease over the topic at hand. Breazeal's anxiety may also resonate with

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[23] Example 2.4 may stand as an illustration of the entire section of Breazeal's loop which acts as an accompaniment to Minsky and Kurzweil's phrases. The loop seen in this example extends to Kurzweil's phrase (If I scan your brain) followed by Minsky's second phrase (No reason people should put up with death.)

spectators who regard their humanity as threatened by the idea of substituting human attributes

for those of a quasi bio-technological organism.

While the previous sonic techniques help reveal emotional states and opinions in *Three*

*Tales*, other techniques will now be examined that obscure recognizable human vocal

characteristics. Such an example occurs in Tale I as a radio announcer reports the destruction of

the Hindenburg. The first half of the announcer's statement, spoken in real time, is shown in

example 2.5.

Tale I, Scene IV:

Newsreel Announcer from 1937: "The Hindenburg has gone. Her tragedy will not halt
the march of progress….From her ashes will arise the knowledge, her fate, the lesson that
will lead to a greater and better means of mastering the air. If so, her dead will not have
died in vain."

Example 2.5. *Three Tales*, Scene IV *In the air-2*, Act I mm. 49-64 announcer's phrase "The
Hindenburg has gone" in real time



When the phrase is heard in its original form, the announcer's voice exemplifies

professionalism, mixed with elements of compassion and determination. The phrase is then

repeated and slow motion sound is applied to the segment "from her ashes will arise the

knowledge." As a result of the manipulation, the humane, empathetic characteristics of the

announcer's voice have vanished. Slow motion sound has warped the identifiable, human vocal

qualities of the announcer's voice into an unintelligible, technological growl. In comparison to

the original example, the voice now sounds disembodied, adrift, machine-like, and disconnected

from the directives of the mind. The former aspects of human vitality and intelligence heard in

the voice have been subjected to their technological captor, resulting in a disconcerting, bio-tech

sound production.

Example 2.6. *Three Tales* Scene IV, Act I mm. 142-158 "The Hindenburg has gone" subjected to slow motion sound



The second example illustrates how looping disrupts rather than promotes, human

connection. Richard Dawkins states:

> Tale III, *Human Body Machine* (mm. 247-386)
> Dawkins - "We and all other animals, are machines created by our genes."

The word "machines" is subjected to the looping technique for 121 consecutive measures (see

Example 2.7). The prolonged use of looping causes Dawkins to appear mentally unstable; his

powers to communicate are lost and he exhibits machine-like characteristics. In this instance,

technological effects make it appear as if Dawkins's beliefs in evolution and equating humanity

with machines are responsible for the manifestation of machine-like qualities in the scientist himself. Looping divides Dawkins from the spectator by removing his human characteristics of sensibility and logic.

Example 2.7. *Three Tales*, Scene II, *Dolly*, Act III mm. 247-249 Dawkins' phrase "We…are machines" subjected to repetition



The third example uses technology to generate the technique of "freeze frame sound." This technique is applied to the majority of spoken phrases throughout Tale III. Freeze frame sound is defined by Reich as the "equivalent of a film freeze frame, in that a single vowel or consonant is extended for a long time, leaving a kind of audible vapor trail behind each speaker that becomes part of the overall harmony."[24] Two examples of this technique may be illustrated through the familiar examples of Richard Dawkins and Cynthia Breazeal. In the first instance examined here, Dawkins reflects upon a "past" life, where biological organisms dominated their environment:

Tale III - *Robots/Cyborgs/Immortality*, (mm. 1261-1283)

Richard Dawkins: "Once upon a time there was—carbon based life—
and it gave over to—silicon based life—I don't view the prospect, with equanimity—
maybe I'm just sentimental."

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[24] *Three Tales*, a documentary digital video opera, under "information" http://www.stevereich.com/threetales_info.html (accessed February 13, 2013).

In Example 2.8, Dawkins's vocal pitches are observed in the pre-recorded voice and cello part with the freeze-frame extension of vowels and consonants written above. The predominant rhythmic motion in *Three Tales* is stilled, and Dawkins's text and vocal phonemes are exposed. The freeze-frame technique begins by sustaining one pitch, followed four measures later by an additional pitch after Dawkins has spoken "carbon based life." Both pitches sound the open [ɑ] vowel of "life." The resulting sound, emanating for the duration of Dawkins's phrase, may be compared to the sonance generated when the lowest notes of a vocal range are sustained. The result of the sonic manipulation converts the clear production of Dawkins's pitch to a gravelly, distorted sound, similar to ones produced in the vocal fry register.[25] In this instance, freeze frame sound appears as the sonic fulfillment of Dawkins's words, indicating that either technology has annexed Dawkins's voice or that Dawkins's voice has fused itself with technology.

Example 2.8. *Three Tales*, Scene VI, *Robots/Cyborgs/Immortality*, Act III mm.1259-1266 Dawkins's phrase "Once upon a time" subjected to freeze frame sound



Most of the voices, words, and phrases produced in Tale III initially sound clear and discernibly human until freeze-frame technology hauntingly underlines them. Words that begin

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[25] According to James C. McKinney, additional names for the vocal fry register are glottal fry, glottal rattle, and glottal scrape. McKinney describes the production of sounds in this register as "requiring a loose glottal closure which will permit air to bubble through with a popping or rattling sound of a very low frequency." See James C. McKinney, *The Diagnosis and Correction of Vocal Faults* (Nashville: Genevox Music Group, 1994), 94. In this context, however, it is technology, and not Dawkins, that creates the illusion that Dawkins is vocalizing in this register.

free of technological manipulation are often quickly followed by the freeze-frame effect. The repetitive use of freeze-frame sound may be for the sake of generating a high-tech sonic background for a technologically-centered artwork. Its presence may also be used as a warning that reminds humankind of what may be lost should the choice be made to neglect how technology is applied to human culture. Freeze-frame technology could also be identified as a prognostic instrument, its sound giving the spectator a foretaste of the characteristics of a new, human/cybernetic race.

Example 2.9 depicts a final, prominent example of freeze-frame sound which appears in the aforementioned phrase spoken by Breazeal ("This gives me pause").[26] Whereas this phrase was previously manipulated solely by the looping technique, both effects of looping and freeze frame sound are applied to it later in the score (mm. 1188-1205). The high pitch beginning Breazeal's phrase becomes isolated as freeze-frame sound locks onto the open [I] vowel of "this." The scientist's tone becomes gravelly-sounding and robot-like, followed by a vowel vapor trail that terminates on a hissed, serpentine-like "S." Technology ironically morphs Breazeal's voice into sounding analogous to the sentient-like robotic species she creates.

Example 2.9. *Three Tales*, Scene VI, *Robots/Cyborgs/Immortality*, Act III mm. 1188-1190
Breazeal - "this" from This gives me pause" subjected to freeze frame sound



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[26] See example 2.4.

In the fast-paced and visually complex work of *Three Tales*, the characteristics of slow motion sound, freeze-frame sound, and looping have provided a way for the meaning of a phrase to be scrutinized by means of isolating, altering, and repeating vocal utterance. These audio manipulations, in turn, communicate messages that can potentially connect or divide the spectator from humanness. Having examined how technological devices promote or discourage human connection in *Three Tales*, the next section will explore how the technological character of Kismet acts both to unite spectators with, and disengage them from, human connectivity.

*Through Kismet*

The final act of Tale III examines how new technologies intersect with the human body. It is in this act, which concentrates upon the idea of technology assuming a bodily form, either in part or in whole, that technology manifests itself in the shape of an identifiable character or actor. This actor is classified as a "sociable humanoid robot"[27] and has been christened with the ambivalent name "Kismet," meaning "portion," "destiny," or "fate."[28] The robot was created for the purpose of "interacting and cooperating with people in their daily lives."[29] Kismet possesses several human-like characteristics that include the abilities of perceiving and reacting to social cues through "gaze direction, facial expression, body posture, and vocal babbles."[30] The robot also responds to stimuli by expressing the facial behaviors of calmness, interest, anger, happiness, sadness, disgust, and surprise.[31] In *Three Tales*, Kismet appears as a metallic, robotic

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[27] Terminology of "sociable humanoid robot" is found at the Kismet Home page under "Overview," http://www.ai.mit.edu/projects/sociable/overview.html (accessed August 18, 2012).

[28] *Oxford English Dictionary*, s.v. "kismet," http://0-www.oed.com.maurice.bgsu.edu/view/Entry/103690?redirectedFrom=Kismet#eid (accessed July 24, 2012).

[29] Kismet Home page under "Overview," http://www.ai.mit.edu/projects/sociable/overview.html (accessed August 18, 2012).

[30] Ibid.

[31] Kismet Home page under "Kismet Home," http://www.ai.mit.edu/projects/sociable/overview.html (accessed August 18, 2012).

head that sports large blue eyes, eye lashes, fuzzy brown eyebrows, and pink paper ears. The robot speaks gibberish and English through mechanical movements of red, thin rubber lips. Kismet's metal skull fleshed out with devices essential for communication make the robot an incongruous mixture of humanity and machine.

Kismet's ability to mimic human speech and behavior inadvertently alerts the spectator to the robot's human-like qualities. Some critics, such as *NPR* correspondent Larry Abramson, positively relate to the robot's ability to respond to human speech and gestures. Abramson noted: "Kismet is a machine that tells us a lot about what it's like to be human."[32] Others, however, such as music critic Tom Service, seem aghast over Kismet's attributes. Service described Kismet at the end of Tale III as follows: "the final, chilling image is of a young research student talking to a grotesque robot, made up with false hair and eyelashes to look like a metallic, skeletal Barbie."[33] The exhibition of human attributes in Kismet succeeds in either case to make a connection and elicit positive or negative reactions from human observers.

In the section *Human Body Machine*, a combination of sonic and visual information establishes another connection between Kismet and humanity. Video shots pan over images of Kismet's hardware as Richard Dawkins intones "we and all other animals are machines, created by our genes." The video shots of Kismet combined with Dawkins's words imply that humans and machines are developing an ever-closer likeness which could result in human-like robots or humans themselves transforming into cyborg life forms.

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[32] Larry Abramson, "Kismet the Robot" *NPR*, April 9, 2001,
http://www.npr.org/programs/morning/features/2001/apr/010409.kismet.html (accessed May 1, 2013).
[33] Tom Service, review of *Three Tales* by Steve Reich and Beryl Korot, Four Stars Barbican, London, *The Guardian*, September 19, 2002,
http://www.guardian.co.uk/music/2002/sep/19/classicalmusicandopera.artsfeatures1?INTCMP=SRCH (accessed May 2, 2013).

The character of Kismet represents a type of "humanoid," and its insertion into Tale III deserves consideration. One possibility for Kismet's presence could be to warn humankind of the "fate" or "destiny" of sharing future society with humanoid creatures that could choose to either demand their own rights or declare humans as second-class or obsolete life forms. Kismet is bequeathed some sparse but telling lines in Tale III that shed light upon the reasons for its presence:

> *Cloning* section - Kismet: "and placed them in the Garden of Eden to serve it and to keep it."
> *Dolly* section - Kismet: "Would you like to be cloned?"
> *Dolly* section - Kismet: "and placed them in the Garden of Eden to serve it and to keep it."
> *Robots/Cyborgs/Immortality* section - Kismet (saying Steinsaltz's words):
> "Every creature has a song. What do they say?"

Kismet's words illustrate the robot's ambiguous disposition. Its presumed innocence, due to its non-human nature, is held suspect by the rather threatening phrase "would you like to be cloned?" In the phrases above, Kismet gives the impression of a guiltless but powerful creation that is evaluating humankind. The robot's words from the Genesis text serve to position it on a prophetic pedestal as it observes humankind's mistakes, wisely predicts future dangers, and cautions against them. Kismet's text also serves to remind the spectator of humanity's failure to consistently make beneficial decisions for life on earth. The placement of Kismet's phrase at the beginning of *Cloning* and at the end of *Dolly* evokes a warning against using new bio-technologies, such as cloning, which could compromise the well-being of humanity and other creatures. Kismet's function appears, in part, to remind humankind of its responsibility as caretaker of the earth. Through prompting humankind of this role, Kismet connects the spectator with one of humanity's primary purposes, and also evokes individual reflection and consideration over humankind's past and present actions. The incorporation of menace and

innocence in Kismet's phrases, however, may also be viewed threateningly. Kismet's human characteristics illustrate a measure of intelligence and its presence implies that if humanity continues to pursue and perfect robotic designs like Kismet, it may cease to experience their environment as the dominant species.

Kismet's ability to successfully interact with humans may impress the spectator with the idea that its presence serves only to promote human connection in *Three Tales.* This assumption, however, would avoid the particular conflict that surrounds the development of intelligent robotic creations. The disagreement over this subject is mentioned by researcher Bill Joy in Tale III:

> *Robots/Cyborgs/Immortality* - Bill Joy:
> "If we create a species smarter than ourselves our prospects are dim—If we're gonna create a robot species, we oughta take a vote first."

Similar struggles over technological development have occurred in times past, particularly when the implementation of machines in the work place resulted in job losses. One exceptional instance took place in Great Britain during the Industrial Revolution. English food and textile merchants sought to replace individual workers and craftsmen with machinery. Authors John and Paula Zerzan describe the event:

> Sporadic rioting occurred in 1769 such as the anti-spinning jenny outbursts which menaced the inventor Hargreaves during which buildings were demolished at Oswaldthistle and Blackburn in order to smash the hated mechanization….The very widespread anti-machinery risings of 1779 saw the destruction of hundreds of weaving and spinning devices which were too large for domestic use. The rioters' sentiments were very widely shared, as evidenced by arrest records that included miners, nailmakers, laborers, joiners — a fair sample of the entire industrial population.[34]

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[34] John Zerzan, "Industrialization and Domestication," in *Questioning Technology: Tool, Toy, or Tyrant*? ed. John Zerzan and Alice Carnes (Philadelphia, PA: New Society Publishers, 1991), 201.

While this historical example involves technological developments pertaining to industrialization, the principle extends into current times. There exists the possibility that popular opinion may be radically divided over the implementation of intelligent robots into social and economic aspects of life. If intelligent robots are successfully developed and displace individuals from parts of societal life, conflict may arise between those who support and those who oppose intelligent robot design. In this sense, the presence of Kismet as an artificial intelligence forerunner represents the foreboding potential of human division arising over the positioning of artificial intelligence in society. For some, Kismet's purpose to interact and cooperate with humans may be viewed as a threat rather than a bridge to human connectivity. Kismet's legacy may have the ability to substitute for humans on many social levels, such as fulfilling the role of a domestic or public servant, or working as a colleague. The concept of having a dependable machine with the capabilities to meet human needs may also appear as an attractive alternative to developing human relationships. Such a scenario in which humans reject the companionship of their own kind to build interactions and affections with robots may be considered by many as nothing short of a futuristic, societal nightmare.

The quasi-human nature of Kismet, regarded by some as repulsive or intimidating, may also serve to divide the spectator from a connection with humanity, as was evidenced within Tom Service's evaluation of Kismet. Instead of viewing the robot appreciatively for the complexity of human makeup in light of robotic design, Kismet may simply be regarded as an anathema. These reactions ultimately lead to the rejection of human characteristics within humanity's creation of a machine. While some scientists, such as Marvin Minsky, hail technology as humankind's replacement and support the melding of intimate human

characteristics with machines, others may never be at ease with the fusion of human attributes to the apparatuses of sterile, technological devices.

As has been similarly observed in the discussion of other technologies in *Three Tales*, Kismet aids and detracts from the spectator's connection with their individual humanity as well as with general human society. The robot's presence instigates several trains of thought as it reminds humankind of his spiritual purpose, represents a futuristic robotic-human social structure, and functions as a prototype that illustrates how human characteristics could be passed on to a life form of humanity's own creation. Ultimately, Kismet's presence in *Three Tales* serves the significant function of urging the spectator to react to the robot's function as character, messenger, and representative of the future possibilities that new technologies may engender within society's midst.

Conclusion

Two predominant interpretations emerge from the various examples discussed in this chapter. The first proceeds from the tale subjects and the Genesis text, both of which illustrate humanity's use of technology to fulfill his willful ambitions. The ideas presented from these two sources ultimately imply that technology in and of itself is not the originator of destruction. Any chaos that is unleashed by technology is still dependent upon the ways that humankind develops and applies it. Technology is, so to speak, subject to the desire of its master, cast as the "maiden in distress" in the drama of life, as well as in *Three Tales*.

The second interpretation is presented via means of technological function, effects, and the robotic character of Kismet. Each of these examples illustrated how a technological capability or presence was able to connect or isolate the spectator from the concept of humanity. In such examples, the dual nature of technology that offers both advantages and disadvantages to

humanity becomes evident. This aspect of technology is described by Korot as being one of the thematic points of *Three Tales*:

> The positive and negative aspects of the technologies that relate to our lives is also something I've always found of interest.…That double-edged sword of the gains and losses of each new technology that we incorporate into our lives is one of the subtexts of *Three Tales*.[35]

Technology seems pursued by the reality that its every advance may be used either for the benefit of humankind or to sow evil against him. This idea was examined in this chapter by considering the subjects of *Three Tales*, the Genesis text, and the positive and negative aspects of technology that encourage or reduce human connectedness. The thematic subjects of *Three Tales*, for instance, extend the promise of good and the chaos of evil in the specific areas of transport, defense and energy, and triumph over disease and death. According to the Genesis account, humanity chose the benefits of the Tree of Knowledge at the cost of disobeying their Creator. Lastly, aspects of technology in *Three Tales* were evaluated for their ability to foster human connectedness or isolation. Despite examining the concept that technology may be used for good or ill, *Three Tales* itself is subjected to technology's fate. In his review of *Three Tales*, Pierre Ruhe of *The Atlanta Journal* astutely posed the question "Are the creators suggesting that artists can use technology blamelessly?"[36] Even within the realm of art, there exist the questions of how and why technology is being used.

In actuality, however, technology does not contain a characteristic for good or evil; it simply is. The path of technology is formed instead by humanity who holds power over it. The

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[35] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.

[36] Pierre Ruhe, review of *Three Tales* by Steve Reich and Beryl Korot, Spoleto Festival, NC, "Spoleto: New Works Explore Big Ideas," *The Atlanta Journal*, June 3, 2002, http://0-www.lexisnexis.com.maurice.bgsu.edu/lnacui2api/api/version1/getDocCui?lni=4600-WP50-0026-G35S&csi=8379&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true (accessed April 25, 2013).

challenge, therefore, lies in the ability of humanity to discern good from evil and use technology for good. The concept of goodness, however, is defined differently depending upon the context and cultural group. One solution, however, is to evaluate past and present technologies and their application. *Three Tales* has laid a small part of the foundation for such work, and the technological tidings revealed in this chapter offer some hints and revelations for the ways technology may intersect with humanity and its environment in the future.

This chapter has delved into the marrow of *Three Tales* in order to discover how its thematic tissues and technological lifeblood presented messages about technology by active and passive means. Chapter Three will now turn from considering the accomplishments of *Three Tales*'s interior technological layers to investigate how technology shapes *Three Tales*'s initial, exterior impact. Music and art reviewers' observations of *Three Tales* will be examined in order to discover how technology use influences *Three Tales*'s reception, and specific musical and dramatic aspects of *Three Tales* will provide insights into the presentation of its musical identity within the arena of scholarship.

CHAPTER III: TECHNOLOGY AS "DISRUPTER" AND "DETERMINER"

*Three Tales*'s critique of technology and its dependence upon technological devices for its essential function has been observed and even decried by several writers as a paradox. Critic Nick Kimberley put it simply: "Composer Steve Reich's video opera uses technology to warn against itself."[1] Some identify this ambiguity as a weakness that challenges the persuasion of *Three Tales* as an art work. According to this view, technology will be discussed as a "disrupter" of *Three Tales*, particularly in regards to its reception. In order to determine the legitimacy of *Three Tales*'s paradox, Reich and Korot's views on technology will be investigated, followed by an examination of the debate over paradox based upon the remarks of critics and *Three Tale*'s creators.

Whereas the first portion of this chapter investigates whether technology use undermines *Three Tale*'s communicative goals or influence with the spectator, the second portion will consider how technology determines aspects of *Three Tales* as a musical artwork. In effect, technology use will be evaluated for the ways it forges *Three Tales*'s characteristics into a particular musical genre. This will involve examining how some traditional theatrical aspects found in operas and non-musical dramatic works are replaced in *Three Tales* by the capabilities of technological devices. In this context, technology will be examined as a "determiner" of *Three Tales*'s musical classification.

Evaluation of *Three Tales*'s Paradox

Before discussing the elements of paradox within *Three Tales*, I will first define what the term means, followed by an examination of its relevance in relation to the work. The first

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[1] Nick Kimberley, review of *Three Tales*, by Steve Reich and Beryl Korot, Barbican Theatre, London, *The Independent*, September 16, 2002, http://www.stevereich.com/threetales_rev.html. (accessed April 20, 2013).

segment of the definition for "paradox" is: "an apparently absurd or self-contradictory statement or proposition, or a strongly counter-intuitive one…"[2] In *Three Tales,* technologically produced sounds and sights appear as a puzzling choice with which to depict the potentially pernicious effects of technology. The second half of "paradox" states: "upon investigation, analysis, or explanation, [the contradiction, or paradox] may nevertheless prove to be well-founded or true."[3] The first step in determining whether *Three Tales*'s paradox is "well-founded," will include an investigation of Reich and Korot's current stance on the subject of technology.

*Reich and Korot's Opinions on Technology*

According to music critic Graham Lack, it is clear that Reich and Korot have positioned themselves "artistically and ideologically"[4] against the setting of the technological triptych presented in *Three Tales*. The critic evaluates *Three Tales* as Reich and Korot's attempt to take a "courageous stand exhorting us not to place our faith entirely in technology."[5] On the other hand, *Three Tales* has been hailed by some critics as a "technical marvel."[6] The artists' simultaneous exhibition of criticism and comfort with technology prompts an investigation into their views on the subject. Interviews foster insight into Reich and Korot's sentiments about technology, its application to the human body, and its role in the production of Reich and Korot's respective art forms.

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[2] *Oxford English Dictionary*, s.v. "paradox," http://0
www.oed.com.maurice.bgsu.edu/view/Entry/137353?rskey=k3CAmp&result=1#eid (accessed March 20, 2013).
[3] Ibid.
[4] Lack, "Imitations of Mortality," 42.
[5] Ibid.
[6] John von Rhein, review of *Three Tales*, by Steve Reich and Beryl Korot, Athenaeum Theater, "Fusion yields '*Three Tales*'; Technology Stars in Video Opera," *Chicago Tribune*, October 5, 2003,
http://articles.chicagotribune.com/2003-10-05/news/0310050022_1_three-tales-hindenburg-steve-reich-ensemble (accessed March 25, 2013).

Art critic Peter Culshaw briefly explored Reich's opinion concerning the effects of technology upon humans. The composer shared that he and Korot believed in the necessity for people to consider "what…technology is for, and what we may have lost through it."[7] He added that "we are using fewer parts of the brain, and are going to suffer for that as a species."[8] Korot explained to critic David Allenby that the continual advancements of technology promote an ever-closer fusion between it and humans, as is illustrated through the bio-technologies explored in Tale III. Korot clarified that *Three Tales*'s last act symbolizes "the whole range of issues now brought about by technology to impact our bodies, not only by manipulating the basic blueprint of that body, but by actually bringing technology into our bodies."[9] Both artists seemed concerned by the intimate affects that technology may exert upon humanity, Reich thinking in terms of a weakened cognition, and Korot considering the possible external and internal alterations that could occur in the human physical form.

Despite these apprehensions, Reich acknowledges technology's advantages. He admitted to Nick Kimberley that "as artists and human beings, we, like everyone else, are the beneficiaries of technology."[10] In the same interview, Reich revealed his mother's battle with Parkinson's disease. He asserted that if a newly-developed brain implant cures the disease, he would put his mother forth for treatment. Reich continued that "there are benefits in technology, and it would be insane not to pursue them, but, as in every field of science, there will be unintended consequences."[11] Reich's comment affirms that he does not sponsor anti-technology sentiments, nor is he adverse to beneficial technological developments. It does denote, however, the

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[7] Steve Reich interview by Peter Culshaw, "Apocalyptic Video Opera Revival," February 12, 2010, http://www.theartsdesk.com/new-music/interview-steve-reich-three-tales (accessed September 29, 2012).
[8] Ibid.
[9] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.
[10] Kimberley, review of *Three Tales* by Steve Reich and Beryl Korot, http://www.stevereich.com/threetales_rev.html (accessed September 15, 2011).
[11] Ibid.

composer's awareness that any technology may yield unpredictable, and perhaps unfavorable, results.

Reich and Korot's views are both enthusiastic and cautious concerning the intersection of technology with their art. Korot is appreciative for what older technological tools illustrate within the context of new ones. She told David Allenby in 2002 that "I have always liked the tension between working with a modern technology and thinking about the older tools that preceded it and learning something from those tools."[12] Korot made the example of the loom which she views as an ancient "programming" tool that has inspired her style of programming multiple video channels. Korot also values the powerful visual arts tools that enabled her to alter archival film footage used in *Three Tales*. The artist related to Wolfe her comfort with the new technologies that were available to her in the production of *Three Tales*:

> By the time we got to *Three Tales* I was able to work completely on a computer "canvas." Film and video images, photos and drawings could all be brought into a single frame, placed in any relationship to one another, at any level of scale or transparency. A completely new plastic environment had emerged with which I felt completely at home.[13]

While discussing technology with Peter Culshaw, Korot stated: "it would be absurd for us to be anti-technology. I can do so much more than I used to on video."[14] It is apparent that Korot is satisfied with the technological advances occurring in her field, and that she will assume the full advantages of what they have to offer in the formation of her artistic ideas.

Reich maintains some set boundaries in the application of technology to his art. When asked if he would wish to arbitrarily explore several musical technologies for use in his

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[12] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.

[13] Steve Reich and Beryl Korot, interview by Julia Wolfe, "Steve Reich and Beryl Korot" (Fall 2002), http://bombsite.com/issues/81/articles/2521 (accessed January 16, 2012).

[14] Steve Reich and Beryl Korot, interview by Peter Culshaw, "How everything changed," *Daily Telegraph*, September 17, 2002, http://www.telegraph.co.uk/culture/art/3582800/How-everything-changed.html (accessed July 22, 2013).

compositions, Reich replied "No, not at all. I only use what suits my purposes. I think the problem with technology is that people use it because it's around."[15] In a similar vein, he emphasized to Nicholas Zurbrugg: "I'm someone who has no use for oscillators or synthesizers … basically, I'm not interested in electronically generated sound."[16] Reich told authors Thomas Crowe and Nan Watkins that he never sought technology for its novelty, nor did he strive to shape his compositional style around the capabilities of new technologies. "Technology is interesting," he declared, "when [it] can enhance what you've got in mind anyway."[17] The composer also revealed that his composition regimen alternates between using technology, and writing pure music. "I … find that after working with technology, as in *Three Tales*, I then need to compose a piece or two, or more, just for acoustic instruments and voices,"[18] Reich reported to Allenby.

The composer values particular technological devices such as the microphone, for its facilitation of audio balance and amplification of non-operatic singers. Other technologies, such as recording devices, are appreciated for supplying "instruments" for soloists to play against,[19] and sampler technologies carry a high importance with Reich for assisting in the production of "contemporary folk music," or music that is relevant to current society, such as rock and roll.[20] According to the composer, sampler technologies aid his musical goals because "anything in this world that makes a sound that means something to people can be incorporated into a musical

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[15] Steve Reich, interview by Bruce Duffie, "Composer Steve Reich: Two Conversations with Bruce Duffie," November 1995, http://www.bruceduffie.com/reich.html (accessed January 23, 2013).

[16] Zurbrugg, ed., *Art, Performance, Media: 31 Interviews*, 308.

[17] Thomas Rain Crowe and Nan Watkins, *Rare Birds* (Jackson, FL: University of Mississippi Press, 2008), 132.

[18] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.

[19] Zurbrugg, ed., *Art, Performance, Media: 31 Interviews*, 308.

[20] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.

composition…very precisely."[21] Reich acknowledges that technologies like the sampler are used "in the street," and that such technologies encourage a healthy dialogue between popular or "street" music, and the concert hall. "It would be strange if artists didn't use this technology for music[al] theater,"[22] Reich declared in an interview with David Allenby. The composer's acceptance and use of technology in his music has borne fruit. With its exploration of pulsing rhythms, slow musical processes, and a return to tonality, Reich's music has served to bridge the gap between popular and classical music, inspiring several American Indie rockers, as well as the band Sonic Youth.[23]

For Reich, artistic ideas are given the ultimate priority in a composition rather than technology. "It's not about 'getting off' on technology," Reich clarified. "It's about using technology as a tool, an instrument, if you will, rather than a plaything."[24] Reich's statement signifies respect both for the artist and the technology that he/she employs. It also implies that a composer must assume the responsibility of creator and guide over his/her art rather than allow a technological device to preempt that role.

It is evident that Reich and Korot value and avail themselves of technological advances that expedite their work and enable the fulfillment of their artistic visions. For Reich, it would appear that the technologies involved to generate works like *Three Tales* will continue to evoke the composer's interest. "Sampling and video in opera and music theater is clearly growing," Reich expressed to Allenby. "It's simply an honest expression of the life we are living now."[25] In

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[21] Zurbrugg, ed., *Art, Performance, Media: 31 Interviews,* 308-309.
[22] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on Three Tales," interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.
[23] Steve Reich, interview by Peter Culshaw, "Apocalyptic Video Opera Revival," February 12, 2010, http://www.theartsdesk.com/new-music/interview-steve-reich-three-tales (accessed September 29, 2012).
[24] Crowe and Watkins, *Rare Birds,* 132.
[25] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.

his search to present music that resonates with modern society, it appears that Reich will not quickly forsake technological advances that enable his artistic visions.

*The Debate over Three Tales's Paradox*

Despite Reich and Korot's recognition of the value of technology in their artistic endeavors, critics have expressed their bewilderment over the alleged paradox within *Three Tales*. Critic Keith Potter hints that the paradox is part of *Three Tales*'s dramatic fascination. He writes that "with deliberate irony, *Three Tales* takes advantage of ever-advancing technology to examine and criticize the ways in which technology itself is used."[26] Music critic Alex Ross refrained from stating an opinion over the matter to simply observe that "even as the composer casts doubt on technology, he avails himself of the latest advances."[27] "There's a paradox in using high-tech art to question high technology"[28] Pierre Ruhe observed of *The Atlanta Journal*.[29] Critic Adam Shatz was concise if not slightly disparaging in his query, "how can artists who depend on technology be so vehemently critical of it?"[30]

Reich and Korot shared their responses to the question of paradox with David Allenby. Allenby questioned whether the artists acknowledged the paradox and if they were advising humanity to reject technology. Reich's reply was "No to both questions….Beryl and I use and

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[26] Keith Potter, review of *Three Tales* by Steve Reich and Beryl Korot, Museum Quarter, Vienna, "Hi-tech Tales for a Weird, Wired World," *The Independent*, May 28, 2002, http://www.stevereich.com/threetales_rev.html (accessed April 27, 2013).

[27] Alex Ross, review of *Three Tales* by Steve Reich and Beryl Korot, Hebbel Theatre, Berlin, "Opera as History," *The New Yorker*, January 6, 2003, http://www.newyorker.com/archive/2003/01/06/030106crmu_music (accessed November 22, 2011).

[28] Ruhe, review of *Three Tales* by Steve Reich and Beryl Korot, "Spoleto: New Works Explore Big Ideas," June 3, 2002, http://0-www.lexisnexis.com.maurice.bgsu.edu/lnacui2api/api/version1/getDocCui?lni=4600-WP50-0026-G35S&csi=8379&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true (accessed April 25, 2013).

[29] Ibid.

[30] Shatz, review of *Three Tales* by Steve Reich and Beryl Korot, "A Fighting Man (and Woman's) Work," October 13, 2002, http://www.nytimes.com/2002/10/13/arts/music-a-fighting-man-s-and-woman-s-work.html?pagewanted=all&src=pm (accessed April 25, 2013).

enjoy the technology necessary to make this work and have used it before in *The Cave*."[31] In

dialogues about the subject with Allenby and Shatz, Reich stated the conviction that the

technologies used in *Three Tales* supplied the work with greater persuasive powers, not fewer.

His immediate reply to Shatz's criticism was "how could you listen to anyone who wasn't

involved in [technology]?"[32] Reich was certain that viewers would encounter difficulties

considering *Three Tales*'s ideas if its artists were inexperienced with the subject in question.

"[*Three Tales*] needed artists who had feelings about technology based on years of experience,"[33]

Reich concluded.

Although Reich and Korot's views on technology firmly support their neutrality about the

subject, their wariness over technology's societal influence and appeal emerges unmistakably in

*Three Tales*. Technological tools serve to generate a drama rife with angst. Alex Ross described

his reaction as being "consumed by a mounting sense of dread "[34] He later observed that "it is as

if a superior, sensitive robot mind were looking to the time when the human race begins to be

obliterated by machines."[35] Several of the visual and sonic effects discussed in chapter two

contribute to the spectator's unease and do not serve to quell the debate over the paradox.

Interviewees who repeatedly undergo technological manipulation are those in the midst of

technological philosophy or development, such as Richard Dawkins, Cynthia Breazeal, Marvin

Minsky, and Raymond Kurzweil. Concerning these technological manipulations, Peter Culshaw

commented: "Richard Dawkins, saying that we are all machines programmed by genes, is made

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[31] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.

[32] Shatz, review of *Three Tales* by Steve Reich and Beryl Korot, "A Fighting Man (and Woman's) Work," October 13, 2002, http://www.nytimes.com/2002/10/13/arts/music-a-fighting-man-s-and-woman-s-work.html?pagewanted=all&src=pm (accessed April 25, 2013).

[33] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*," interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.

[34] Ross, review of *Three Tales* by Steve Reich and Beryl Korot, "Opera as History," January 6, 2003, http://www.newyorker.com/archive/2003/01/06/030106crmu_music (accessed November 22, 2011).

[35] Ibid.

to look smug and simplistic in his certitudes."[36] The rather unattractive manipulations of current, prominent scientific minds may lead to the assumption that Reich and Korot, in actuality, harbor anti-technology persuasions.

On the other hand, several other interviewees considered to be current technological leaders escaped technological manipulation. Examples include Bill Joy, developer of the Java Programming language; Jaron Lanier, a respected authority in the invention of virtual reality techniques; and Henri Atlan, Professor Emeritus of Biophysics at the Universities of Paris and Jerusalem. The similarity between the scientific thinkers whose interviews were not manipulated is that each expressed attitudes of caution and responsibility as they contemplated technology and its development. Korot spoke of the value she placed upon these characters in *Three Tales*:

> [Bill] Joy and Sherry Turkle cast a cautionary eye toward faster and faster technological development without careful consideration. Joy says "no plan, no control, no brakes." So I'm happy that somebody like that is in our piece. And Jaron Lanier says "It's a terrible mistake to think of the spiritual impulse as arising from cognitive weakness." He's a very smart guy with a really good conscience. They are all part of the scientific community who are creating a dialogue with the public. If this piece does anything to foster their ideas and to present them in a new way for more people to think about, then that's great.[37]

Korot's statement indicates support for scientists who choose to work with technology while reflecting upon the costs of technological advancement. Reich and Korot do not merely challenge all technologies; they object to a heedless pursuit of technological progress without considering its positive and negative effects. Instead of viewing the use of technology in *Three Tales* as a disruptive paradox in which technology critiques itself, its presence could be considered as an instrument through which it criticizes humanity's use of technological power. This subtle yet significant difference in evaluating technology's application, coupled with Reich

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[36] Steve Reich, interview by Peter Culshaw, "Apocalyptic Video Opera Revival," February 12, 2010, http://www.theartsdesk.com/new-music/interview-steve-reich-three-tales (accessed September 29, 2012).
[37] Steve Reich and Beryl Korot, interview by Julia Wolfe, "Steve Reich and Beryl Korot" (Fall 2002), http://bombsite.com/issues/81/articles/2521 (accessed January 16, 2012).

and Korot's acceptance of the capabilities and benefits of technology, support the view that

*Three Tales* is free of paradox.

In a telling interview, Reich relates his wish not to abrogate technology from society, but

to balance the reality of its role within current human existence. He expressed:

> I want to understand technology better myself. On one hand, we see the pitfalls of the
> world around us as it becomes more and more technological. On the other hand, I'm not
> willing to say I want to throw [technology] out, and everything Western man has done is
> a sin, and everyone else is wonderful … I guess [Beryl and I] are doing this piece to try to
> better understand ourselves![38]

Contrary to the view that technology causes disruption in *Three Tales* by generating a paradox,

the composition can be viewed in a cathartic sense, its technology channeled to generate a work

that enables the composer to reconcile the nature of technological development, and in turn,

invites the spectator to do likewise.

<div align="center">Technology as "Determiner"</div>

*Three Tales* status as a new type of multimedia work conversely signifies that it lacks a

concrete genre precedent to which it may be compared to or categorized under. The work has

been adorned with an assortment of genre modifiers by scholars and critics alike. Many of these

include the word "opera," prefaced by an adjectival descriptor such as "new,"[39] "pioneering,"[40]

or "high-tech."[41] Music scholar Herbert Lindenberger, for example, discussed *Three Tales* under

a chapter heading "opera by other means."[42] The author opens the chapter by questioning how

immediacy and communication between the spectator and the modern opera director might be

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[38] Steve Reich, interview by David Sterritt, February 26, 1997,
http://www.csmonitor.com/1997/0226/022697.feat.music.1.html (accessed April 25, 2013).
[39] Crowe and Watkins, *Rare Birds,* 123.
[40] Steve Reich and Beryl Korot, interview by Peter Culshaw, "How everything changed," September 17, 2002,
http://www.telegraph.co.uk/culture/art/3582800/How-everything-changed.html (accessed July 22, 2013).
[41] Herbert Lindenberger, *Situating Opera: Period, Genre, Reception* (New York: Cambridge University Press,
2010), 99.
[42] Lindenberger, *Situating Opera*, 83.

most effectively achieved. Lindenberger then examines ten modern operatic productions conceived between 1987 and 2009. While the operas mentioned display largely disparate characteristics including film, animated projections, pop and rock music, or paralleling narratives of century-old operas with historical events of the twentieth century, the productions are linked by illustrating how the idea of "opera" could be represented in modern times. *Three Tales* is considered within this context, as the author discusses Reich's aversion to conventional opera aspects, such as vibrato, as well as *Three Tales*'s "new musical language in which sight cannot be separated from sound, text cannot be separated from its musical embodiment …. [and] speech rhythms become part of the musical fabric."[43] The operas I consider out of Lindenberger's discussion to share the most general characteristics with *Three Tales* are John Cage's *Europeras I and II* (1987), Robert Wilson and Tom Waits's *The Black Rider* (1990), and Michael Mayer/Billie Joe Armstrong/ Green Day's *American Idiot* (2004 and 2009). *Europeras I and II,* with its chaotic presentation of mismatched arias, orchestral scores, and stage costumes, deliberately confronts concretely held traditionalist views of what "opera must be."[44] Cage's purposeful assailment upon the traditional elements of opera parallels Reich's tendency to distance *Three Tales* from operatic characteristics (i.e. a vibrato singing style and a pit orchestra) which he believes to be incongruous with modern stage productions. *The Black Rider* shares the question of genre categorization with *Three Tales* and *American Idiot* heavily depends upon technology for its production. Both works eschew the use of an operatic, vibrato-centered singing style.

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[43] Lindenberger, *Situating Opera*, 100-101.
[44] Ibid., 104.

In terms of categorizing their artistic creation themselves, however, Reich and Korot appear settled on titling *Three Tales* as a "documentary digital video opera."[45] Despite appending "opera" to the descriptive title of *Three Tales*, Reich declared the term does not imply an association between traditional opera characteristics and the work. "If what you mean by 'opera' is *bel canto* voices onstage and an orchestra in the pit, [*Three Tales*] is most certainly not an opera,"[46] Reich told Fred Cohn of *Opera News*. Korot told David Allenby that "[*Three Tales*] is not theater with a capital 'T' trying to be a classic form of opera or drama."[47] In his conversation with Fred Cohn, the composer offered one explanation for using the term 'opera': "[*Three Tales*] [is] an 'opera' in the Italian sense of 'work'— it's a large piece, it fills an evening, there's a story,"[48] Reich expressed. While the composer's statement aligns *Three Tales* with the most generic definition of opera, it most aptly illustrates the way art forms evolve and are perceived differently within cultural epochs.

Although Reich partially accepts the term "opera" in association with *Three Tal*es, he also firmly cautions against the spectator's expectation of experiencing *Three Tales* as a traditional operatic work. The composer told Joshua Kosman of *The San Francisco Chronicle*: "If you want to call [*Three Tales*] opera, OK—but it doesn't use an orchestra or *bel canto*

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[45] *Three Tales* website, "*Three Tales*: A Documentary Digital Video Opera," under "Information," http://www.stevereich.com/threetales_rev.html (accessed November 8, 2012).

[46] Fred Cohn, review of *Three Tales*, by Steve Reich and Beryl Korot, "Tales from the Triptych," *Opera News*, March 2003, 50, http://0-search.ebscohost.com.maurice.bgsu.edu/login.aspx?direct=true&db=a9h&AN=9115407&site=ehost-live&scope=site (accessed April 25, 2013).

[47]Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.

[48] Cohn, "Tales from the Triptych," 50, http://0-search.ebscohost.com.maurice.bgsu.edu/login.aspx?direct=true&db=a9h&AN=9115407&site=ehost-live&scope=site (accessed April 30, 2013).

singing, and the musical and vocal techniques are completely different."[49] The characteristic

differences between a traditional opera and *Three Tales* is marked by the way Reich and Korot

defined a documentary digital video opera, which was as a "kind of new musical theater."[50] In

their book *The New Music Theater*, authors and composers Eric Salzman and Thomas Desi are

frontrunners in addressing an emerging musical style which is not categorized either as

traditional opera or musical theater, but has evolved from the characteristics of one or both

genres. *Three Tales*'s characteristics have prompted Salzman and Desi to suggest the work as one

of the several examples of the new music theater genre.[51]

     While the compact performance nature of *Three Tales* appears to rebuff the august

presentations of grand opera, it is the use of technology that most strongly identifies the

composition with the new music theater. This point will be illustrated by analyzing how

technology closely aligns *Three Tales* with the new music theater while dividing it from

traditional opera in the following categories: the actor/singer, singing style, and the narrative.

Before illustrating the ways technology determines *Three Tales*'s genre, a brief review of the

standard expectations in traditional opera for the three categories will be discussed. This will be

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[49] Steve Reich, interview by Joshua Kosman, "Minimalist Master Tells 'Tales' of Technology/ Steve Reich's new multimedia work coming to S.F. Symphony's Mavericks festival," *San Francisco Chronicle*, June 4, 2000, http://www.sfgate.com/entertainment/article/Minimalist-Master-Tells-Tales-Of-Technology-2774297.phphttp://www.sfgate.com/entertainment/article/Minimalist-Master-Tells-Tales-Of-Technology-2774297.php (accessed March 8, 2013).

[50] Defined as such on the *Three Tales* website. *Please Note*: Although *Three Tales* is labeled as a "new kind of musical theater" on the *Three Tales*'s website, the term "music theater" was perhaps the preferred term. The author makes this assumption because Reich refers to *The Cave,* which shares many characteristics with *Three Tales* such as operatic elements and film, as a "new type of music theater" (see Steve Reich: *Writings on Music*, ed. Paul Hillier (New York: Oxford University Press, 2002), 169. The author has discovered no research in which Reich has distinguished his works as being a "new kind of musical theater" as opposed to being a "new kind of music theater."

[51] In their introduction to the *New Music Theater*, Salzman and Desi explain that they explore several examples of what music theater "has been, is, or might be" (pg. 6), and also identify the art form as one "whose story is still being written; it is also still evolving, not to say constantly redefining itself" (pg. 7). In their preface to the same book, Salzman and Desi refer to the new music theater as "the art form that never happened" (pg.vii). *Three Tales* is presented as part of this evolutionary story in chapter fourteen entitled "Minimalism and Music Theater," a chapter which is, incidentally, under the same section heading Salzman and Desi previously used to refer to the new music theater - "the art form that never happened."

followed with an evaluation of the ways technology shapes these categories in *Three Tales*, and

therefore connects the work with the new music theater genre.

### *Opera and the Actor/Singer, Singing Style, and the Narrative*

The term 'opera' stems from Italian linguistic roots and is the abbreviation of *opera in*

*musica*.[52] More precisely, 'opera' is the plural of the Latin word "opus," meaning "a work."[53]

Opera as a staged art is defined as: "a musical dramatic work in which the actors sing some or all

of their parts; a union of music, drama, and spectacle, with music normally playing a dominant

role."[54] Denis Arnold in the *Oxford Companion to Music* identifies opera as being separate from

other musical forms, because it is a "work intended to be staged, in which singing plays a

dominant part in portraying the actions and emotions of the characters."[55]

Singers have been said to function as the "central purveyors of opera's message."[56] As

such, they serve to communicate the drama of an opera through the portrayal of the thoughts,

emotions, and actions of an assigned character. In romantic-period operas, the drama would

revolve around the life events of an individual hero with whom the audience could identify.

According to Stephan Smith, author of *The Naked Voice,* it is within such operas as well as

several other performance art genres that the "audience seeks an immediate connection with the

performers on stage."[57] The actor/singer, therefore, disseminates the plot in part by illustrating

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[52] *The Oxford Dictionary of Music*, 2nd ed., s.v. "opera," http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article_citations/opr/t237/e7485?q=opera&search=quick&pos=2&_start=1 (accessed November 13, 2012).
[53] Ibid.
[54] *The Norton/Grove Concise Encyclopedia of Music*, 5th ed., s.v. "opera."
[55] *The Oxford Companion to Music*, s.v. "opera" (by Denis Arnold), http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/opr/t114/e4847?q=opera&search=quick&pos=3&_start=1#firsthit (accessed November 13, 2012).
[56] *Grove Music Online,* s.v. "opera: 19th century," http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article_citations/grove/music/40726pg5?q=Opera%2C+19th+century&search=quick&pos=1&_start=1 (accessed April 25, 2013).
[57] W. Stephan Smith and Michael Chipman, *The Naked Voice* (Oxford: Oxford University Press, 2007), 4.

the psychological and emotional experiences of a character in which an audience can vicariously participate. Singing itself plays a particularly decisive role in the portrayal of emotional and mental states. This agrees with the previous definition that "singing plays a dominant part in portraying the actions and emotions of the characters"[58] as described by Arnold.

The singing style typically associated with traditional opera includes a supported, vibrato-based vocalism produced by an instrument equipped to carry sound over a chorus and orchestra.[59] With the arrival of grand opera in the nineteenth century, the size of opera houses and orchestras dramatically grew, requiring a new vocalism that concentrated upon the power of sound production.[60] Salzman and Desi write that "the supported voice with a big throw became the dominant technique of opera singing."[61] Despite the acceptance of technological developments within other singing styles, amplification in the opera house has typically been opposed. Salzman and Desi partially attribute this to the redundancy caused between the microphone and the traditionally produced, operatic voice:

> In the end, the microphone in the theater does what nineteenth-century vibrato-based singing technique was designed to do: throw the voice outward to places it could not previously reach. It is therefore somewhat logical that, except under special circumstances, any form of electronic enhancement is forbidden in the opera house.[62]

In the twentieth century, several singing styles experimented in new types of sound production. Popular genres of music embraced amplified sound, which released singers from a dependency upon diaphragmatic support, chest voice, and breath control.[63] The classical,

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[58] See footnote 52.
[59] For example: According to *Norton/Grove Concise Encyclopedia of Music*, s.v. "opera," some of Meyerbeer's operas called for "massive choral numbers," and Wagner's operas often employed a brass section that singers needed to project their voices over.
[60] Salzman and Desi, *The New Music Theater*, 18.
[61] Ibid.
[62] Salzman and Desi, *The New Music Theater*, 24.
[63] *Grove Music Online*, s.v. "singing" (by Owen Jander and Ellen T. Harris), http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/25869?q=Singing&search=quick&pos=1&_start=1#firsthit (accessed June 11, 2013).

operatic genre, however, continued to largely refuse electronic technologies. Sound production was experimented with instead though the use of techniques such as *Sprechstimme*, or vocalism produced by using both speaking and singing, and experimentation with choral recitation, glissando, and controlled shouting.[64] The technique of *bouche fermée* (It. *bocca chiusa*), or humming, was used most famously in the last act of Verdi's Rigoletto but the technique was also continually explored in several twentieth-century works.[65]

The thoughts and experiences conveyed via singing are encompassed within the opera narrative, which has been a central component of opera for at least four centuries. The narrative maintains a logical flow for the unfolding of events in a plot and has had influence upon the development and use of vocal categorizations. The definition of narrative is: "an account of a series of events, facts, etc., given in order and with the establishing of connections between them; a narration, a story, an account."[66]

Within the context of a traditional drama, the definition of narrative presents the expectation that a sequence of events will occur that involve particular characters. Background information aids the spectator's grasp of the drama's plot structure, and involves the beginning, climax, and conclusion of a work. A plot is known to be "the plan or scheme of a literary or dramatic work… [which are] considered or presented as an interrelated sequence."[67] This "interrelated sequence" is vital for the establishment and maintenance of the spectator's interest, entertainment, and ultimate satisfaction at the close of the performance. The next section will

[64] *Grove Music Online*, s.v. "singing" (by Jander and Harris), http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/25869?q=Singing&search=quick&pos=1&_start=1#firsthit (accessed June 11, 2013).
[65] *The New Harvard Dictionary of Music*, s.v. "*bouche fermée*."
[66] *Oxford English Dictionary*, s.v. "narrative" (second definition), http://0-www.oed.com.maurice.bgsu.edu/view/Entry/125146?rskey=3VrPjl&result=1&isAdvanced=false#eid (accessed April 20, 2013).
[67] *Oxford English Dictionary*, s.v. "plot" (sixth definition), http://0-www.oed.com.maurice.bgsu.edu/view/Entry/145915?rskey=KIyZqd&result=1#eid (accessed April 20, 2013).

explore the ways the actor/singer, singing style, and narrative have changed within the context of

*Three Tales* as new music theater.

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*Three Tales as New Music Theater:*
*Technology's Influence upon the Actor/Singer, Singing Style, and the Narrative*

</div>

One hallmark of the new music theater is a de-emphasis of the actor/singer. In a

discussion of new music theater characteristics, Salzman and Desi outline some features that bear

greater significance than the role of the actor/singer:

> Physical and visual elements come to play an increasingly important role in a new work.
> Actors and singers are no longer always required to invest their stage personalities with
> the characters they are "pretending" to inhabit or to convince the public that they have
> "become" these characters….The tragedy of the individual hero (or anti-hero) beloved of
> romantic opera, gives way to the anonymous (and symbolic or representative)
> protagonist, and the now dysfunctional narrative tale is replaced by a theater of images,
> also strongly imbued with symbolic or representative values.[68]

In *Three Tales*, the role of the singer, as it once was regularly expected in opera, is

largely reduced. The individual who embodies the essence of a character via singing and acting

has been omitted entirely. The only representation of the singer lies in a small vocal quintet that

functions as a Greek chorus, observing and commenting upon presented events.[69] This quintet,

incidentally, exchanges opera's standard incorporation of all voice parts (i.e., soprano, alto,

tenor, baritone, and bass) for the more unusual combination of three tenors and two sopranos. In

addition to this change, Graham Lack observed that Reich defied common opera expectations in

other ways: "Reich treats his singers not as protagonists (they are not given any particular 'role')

but has them placed in various positions on stage, in front of, but well down-stage from, the

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[68] Salzman and Desi, *The New Music Theater*, 90.
[69] Lack, "Imitations of Mortality," 43.

screen on which the real action takes place."[70] As a replacement of the singer/actor, "physical

and visual elements" such as were described in Salzman and Desi's definition, come into play. In

Tales I and II, for example, visual projections, newspaper headlines, and inserted words and

phrases present and illustrate events. Instead of interpreting and experiencing the essence of a

character on stage, the audience is left to contemplate their mental and emotional response to the

realities of the past and present events expressed on screen.

Let us momentarily consider, however, the possibility of character-types being found

within the interviewees of Tale III. Korot discussed the concept of "actors" as she related the

process of editing interview material: "Sometimes, someone might have given us fantastic

answers but if that person didn't deliver the words in a certain way, or look convincing … they

didn't make it into our final cut. So in a way, the interviewees are being cast like actors."[71] While

Korot admits that the interviewees are "fairly static and iconographic,"[72] she appends that they

"add a live presence that both extends into live space and supports what is on the screen."[73] Even

so, Korot ultimately concludes that the theater aspect of *Three Tales* is there to "serve the video

and the music."[74]

Although the interviewees offer a "live presence" in *Three Tales,* they do not help to

relay an interrelated sequence of events, nor do they invite the audience to vicariously participate

within a character's experience. Instead, the interviewees' verbal communication is synthesized

and evaluated by the spectator, similar to what would occur during a documentary interview or

news story. The complexity of emotion required for acting and the intricacies of singing finds no

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[70] Lack, "Imitations of Mortality," 43.
[71] Steve Reich and Beryl Korot, "A Theater of Ideas: Steve Reich and Beryl Korot on *Three Tales*" interview by David Allenby, The Steve Reich Ensemble and Synergy Vocals, *Three Tales* CD and DVD.
[72] Ibid.
[73] Ibid.
[74] Ibid.

place in *Three Tales*. Released from a human actor's interpretations or conveyance of emotion, the tools of technology are freed to relate technology's story.

What replaces *Three Tales*'s reliance upon the actor/singer, then, are technological devices. Let us look at some examples whereby technology helps to fulfill Salzman and Desi's description of the new music theater in relation to the actor/singer. The first and obvious replacement of the singer/actor lies in *Three Tales's* dependence upon technology for the visual revelation of the events in Tales I-III. Technological devices work as the relay mechanism for the disclosure of events which results in the replacement of the human actor/singer. Secondly, since a narrative is no longer presented via characters, technology helps to execute a narrative by creating a "theater of images"[75] (i.e., the events of the Hindenburg, Bikini Atoll, and Dolly.) These events are often permeated with what Salzman and Desi referred to as "symbolic or representative values,"[76] such as the visual scripts of the Genesis text, or Korot's inserted drawings or manipulations of historical footage. The plight of a character, or the nuance of emotion expressed through song are exchanged for an emphasis upon these visual elements. The ponderous aspect of actors to "pretend" to be, and "convince" the public, has been removed altogether; technology solely remains to present the information at hand without the distractions of the immediate emotional or psychological connections that staged actors may invoke. Although the argument can be made that a human connection appears in the removal of the Bikini people in Act II or in the interviews of Act III, technology use results in an avoidance of sympathies with an individual hero. In *Three Tales*, technology replaces the actor/singer with reality itself, voiding the requirement to act out a story with characters since real events, people, and ideas are portrayed. This type of technology use helps to align *Three Tales* with the new

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[75] "Theater of Images" is Salzman and Desi's term, found in their discussion of the actor/singer in *The New Music Theater*, 90. Note the quote taken from this discussion on thesis page 99.

[76] Salzman and Desi, *The New Music Theater*, 90. (See Salzman and Desi quote on page 99 of thesis.)

music theater as technology substitutes for the connection and story-telling role of the actor/singer.

Technology also fashions the type of singing style used by the vocalists in *Three Tales*, resulting in another area whereby the work's characteristics shift away from traditional opera towards new music theater. The new music theater disassociates itself from the aggrandizing characteristics of traditional opera, which can include, according to some viewpoints, the overly-robust and unwieldy nature of the operatic voice. While opera houses denied new sound technologies access to the stage, theater has not proven adverse to technological innovations.[77] Microphones have generated new possibilities for different singing styles and voice types to be implemented into creative works. Salzman and Desi disclose that "the use of amplified sound—amplified vocal sound in particular—has taken off in unexpected directions. The range of available singing styles is very great and almost in continuous evolution."[78] The authors list several singers who have used amplification to craft their individual vocal style, including Louis Armstrong, Bobby McFerrin, Tom Waits, and Meredith Monk.[79] Although much of this singing initially occurred in all types of performance venues from clubs to concert halls, Salzman and Desi point out that "it has become an important element in the evolution of alternative music-theater performance styles."[80] Due to the unprejudiced stance of new music and music theater towards amplification, Salzman and Desi conclude that opportunities for a wide range of choices in the creation and performance of new works abound.[81]

In various interviews, Reich has discussed his opinions about operatic sound production as well as his preference for a vocal style that employs technology. Nick Kimberley reveals the

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[77] Salzman and Desi, *The New Music Theater*, 22.
[78] Ibid., 25.
[79] Salzman and Desi, *The New Music Theater*, 25
[80] Ibid.
[81] Salzman and Desi, *The New Music Theater*, 27.

composer's reflection over his past reaction to requests made in the 1980s by the Frankfurt

Opera and the Holland Festival to compose an opera work. Reich's decision about the

opportunity was firm:

> I simply didn't feel sympathetic to the form which, as it comes down to us, is about *bel canto* voices on stage, and an orchestra in the pit. By that time, I had stopped working with the orchestra, and I wasn't drawn to the idea of acting singers, which was kind of fundamental to opera. I had no solution.[82]

Reich explained his reasons for specifically avoiding the *bel canto* operatic voice in an

interview with Geoff and Nicola Smith:

> For a start, the microphone was invented. That's a fact of musical life which had a profound effect on vocal style … the operatic voice was created … in the early days to be heard over the orchestra. But to recreate even the Mozartian opera voice now we have microphones, or to amplify that voice, seems to me absurd, a musical mistake in very bad taste.…When I look into a music shop now, what I see in the window doesn't go with the *bel canto* voice. Things like reverb units, digital delays, samplers, and all the rest of it are part of our folk music. … That's what's going on in the street, and I think it's very healthy when there's some sort of converse between the concert hall and the street.[83]

Seventeen years before *Three Tales* had been written, Reich had contemplated the vocal style he

would use if he were to write a staged musical work. In an interview with Bruce Duffie in 1985,

Reich reported that "the first thing I would address in a piece of music theater would be vocal

style. It would have to be a style that was amplified."[84] *Three Tales* was produced seventeen

years later and accompanied by score notes which specify that "all voices and instruments, with

the possible exception of drums, are amplified."[85] Music critic Graham Lack discerned that

Reich deliberately separated *Three Tales* from associations with opera by requiring a straight-

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[82] Kimberley, review of *Three Tales* by Steve Reich and Beryl Korot, September 16, 2002, http://www.stevereich.com/threetales_rev.html (accessed September 15, 2011).

[83] Smith and Smith, *New Voices*, 224.

[84] Steve Reich, interview with Bruce Duffie, "Composer Steve Reich: Two Conversations with Bruce Duffie," October 1985, http://www.bruceduffie.com/reich.html (accessed January 23, 2013).

[85] Steve Reich, "*Three Tales*: Hindenburg, Bikini, Dolly," http://www.boosey.com/cr/perusals/score.asp?id=1330 (accessed September 14, 2013).

tone vocal production. This requirement would, of course, exclude the natural amplifying effect produced by an operatic technique and require the voice to be amplified. Lack observes:

> Opera has been in crisis ever since its inception: the genre today remains nothing if not problematic. But Steve Reich senses this, and studiously avoids the pitfalls of casting, for example, his three tenors as "three tenors." He calls instead for a straight vocal sound…[86]

It is clear that Reich values the importance of using contemporary technologies in order to produce a singing style that fits within the expectations of current society. The composer also appreciates the particular expressive possibilities that the microphone can produce. He told the *San Francisco Chronicle*: "I prefer the way a microphone allows a singer like Ella Fitzgerald … to sing with great subtlety and nuance over a band and still be heard."[87] It is, therefore, unremarkable that the five singers in *Three Tales* are amplified and exhibit a singing style far removed from nineteenth-century operatic singing practice. The style of the singers in *Three Tales* produces a clear tone, free of vibrato that easily blends with the voices of their companions. Their vocalism could best be likened to an early music chorus that generates sound as a unit without the protrusion of singular or overly-powerful voices.

The sound technologies used in *Three Tales* in the form of microphones, speakers, and amplifiers simultaneously serve to fulfill Reich's views for an appropriate, current vocalism while empowering the audience to hear five straight-tone singers over the amplified instruments and video track of *Three Tales*. These technologies are another catalyst that shifts *Three Tales* away from an operatic singing style to an independent production that is encompassed within new music theater characteristics. According to Salzman and Desi, this vocal style not only fits within new music theater, but is a recognized and familiar phenomenon with the current public:

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[86] Lack, "Imitations of Mortality," 43.

[87] Steve Reich, interview by Joshua Kosman, "Minimalist Master Tells 'Tales' of Technology," June 4, 2000, http://www.sfgate.com/entertainment/article/Minimalist-Master-Tells-Tales-Of-Technology-2774297.phphttp://www.sfgate.com/entertainment/article/Minimalist-Master-Tells-Tales-Of-Technology-2774297.php (accessed March 8, 2013).

Amplification quickly came to dominate virtually most other forms of public vocal performance from a relatively early date. Audiences are, in fact, used to hearing speaking and singing voices through loudspeakers.[88]

Technology, therefore, allows Reich to achieve musical relevancy with his audience by means of amplification and the enablement of a vocal production that evades association with what some may view to be the anachronistic vocal practices of traditional opera.

The narrative is one important means whereby new music theater has differentiated itself from traditional opera and current, popular media entertainments. In the twentieth century, the linear narrative, or one that presents events in chronological order, became known as the dramatic mainstay of film and television productions.[89] In order to distinguish contemporary music theater from both entertainments, composers have abandoned the linear narrative and eschewed the portrayal of realism.[90] These characteristics were refused in favor of focusing attention upon the performer, exploring the imagination, and the inner self.[91] Salzman and Desi explain that contemporary staged works

> return[ed] to prototypical myths and moralities, favoring inner expression over a clear narrative, experimenting with nonlinearity, and using stage action as a metaphor rather than as a simulation of reality. At the same time, they tend to accentuate the physicality of the performer, the nature of the performance medium, and even the performance concept itself as substitutes for storytelling, which may be reduced, merely alluded to, or abandoned altogether….This has led to a revival of the use of well-known classical myths but also the introduction of news stories from relatively recent times; in both cases, the assumption is that audiences already know the stories, at least in their general outlines, so that all the details do not have to be spelled out in realistic fashion.[92]

Salzman and Desi also state that the non-linear narrative does not in itself engender a new music theater work:

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[88] Salzman and Desi, *The New Music Theater*, 24.
[89] Ibid., 63.
[90] Salzman and Desi, *The New Music Theater*, 63.
[91] Ibid.
[92] Ibid.

> The story as a driving force is what creates the swift passage of time in the music/theater combination. The elimination of traditional models in the course of experimentation with fragments, collages, and abstraction puts the issues of duration and time span back onto center stage.[93]

Although new music theater works may present a non-linear narrative that also obscures the passage of time, Salzman and Desi articulate that it is the way time is used which determines the difference between new music theater and traditionally staged works. Unlike traditional opera/music theater, new music theater does not negotiate with presenting events in a way that mimics their passage in real life.[94]

   *Three Tales*'s narrative bears more similarities to a colorful montage that avails itself of audio and video fragments and collages rather than the logical pieces of a traditional narrative. As Tom Service of *The Guardian* observed, "although there are vestiges of conventional narrative in [*Three Tales*]—like the countdown to the ignition of the A-bombs in the Bikini Atoll sequence, or the construction and collapse of the Hindenburg—most of the story-telling is oblique and abstract."[95] Figures 3.1 through 3.3 provide excerpts of *Three Tales*'s libretto from Scene I, Act I, Scene I, Act II, and Scene II, Act III.[96] They illustrate how one-line facts, speech accounts, information bits, and interview fragments are united to comprise libretto sections:

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[93] Salzman and Desi, *The New Music Theater*, 95.
[94] Ibid.
[95] Service, review of *Three Tales* by Steve Reich and Beryl Korot, September 19, 2002, http://www.stevereich.com/threetales_rev.html (accessed April 28, 2013).
[96] Each of the listed libretto sections in Figures 3.1-3.3 have been retrieved from the *Three Tales* website under "libretto," http://www.stevereich.com/threetales_lib.html (accessed September 16, 2013).

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# Hindenburg

### Scene 1
### It could not have been a technical matter

*New York Times* headline May 7, 1937 - drummed out: **Hindenburg burns in Lakehurst crash, 21 known Dead, 12 missing, 64 escape.**

3 tenors: ***It could not have been a technical matter***

Headline: **Dr. Hans Luther, the German Ambassador, said the disaster must not cause the world to lose faith in dirigibles and that it could not have been a technical matter.**

Radio announcer Herb Morrison: **It flashed, it flashed and it's crashing, it's crashing terrible. It burst, it burst into flame. Get this Scotty! Get this Scotty!**

**It flashed, it flashed and it's crashing. Bursting, bursting into flame. Oh, its flames. Get this, get this Scotty!**

**Bursting into flame, into flame. Get this Scotty! It flashed and its crashing, it flashed. It's crashing terrible. Get this, get this Scotty.**

**It burst, it burst into flame, into flame. It flashed, it flashed and its crashing.**

**Oh, it flashed. It's crashing terrible. Get this, get this Scotty**

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Figure 3.1. Scene I, Act I

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**Bikini**

**In the air-1**

*NewYork Times* headline: **Atom Bomb Exploded**

Countdown: **Ten**

3 tenors (from New York Times): *I watched it, I watched it climb*

Genesis (drummed out): **And G-d**

headline: **Atom bomb exploded over Bikini fleet**

Countdown: **Nine**

3 tenors : *I watched it climb to a height of two miles*

Genesis : **created man**

headline: **Two ships are sunk, nineteen damaged out of seventy three**

Countdown: **Eight**

3 tenors: *It never stood still*

Genesis: **in His image**

---

Figure 3.2. Scene I, Act II

> **Dolly**
>
> Typing: **First successful cloning of adult mammal**
>
> Typing/3 Tenors: *277 udder cells, 29 embryos yield 1 live sheep*
>
> Roslin Institute worker: **Let me introduce, Dolly**
>
> Dolly : **Baaaa**
>
> Kismet: **Would you like to be cloned?**
>
> 3 Tenors, long canon on: *277 udder cells, 29 embryos yield 1 live sheep.*
>
> Stephen J. Gould: **No, wouldn't be me. Just a genetic copy.**
>
> Dawkins: **It would be a truly riveting, fascinating experience.**
>
> Gould: **Identical twins are better, and closer clones than Dolly**
>
> Jaron Lanier: **Cloning is only one of the new biological tricks. Not the one to be most worried about.**
>
> Kismet - from Genesis: **And placed him in the garden of Eden, to serve it and to keep it.**

Figure 3.3. Scene II, Act III

The frenetic, documentary style of the previous narrative examples, born from the chaos of the moment, illustrates their non-linear aspect. The mixed fragments of historical events, emotions, and opinions gives the impression of urgency and information overload, psychological states common for current times, but stylistically differentiated from the linear narrative of a traditional opera. In addition to non-linearity, several further points belonging to Salzman and Desi's definition of the new music theater narrative emerge in *Three Tales* as a result of technology use. These points are listed below and are followed by an explanation of their connection to technology in the following paragraphs:[97]

1.  Returning to … moralities

2.  Favoring inner expression

3.  Experimenting with nonlinearity

4.  Accentuate … the nature of the performance medium (as substitute for storytelling)

5.  Introduction of news stories

6.  Experimentation with time

Regarding point one, the sub-text of *Three Tales* has been identified by some critics as an "old-fashioned moral parable"[98] and a "morality play."[99] The use of technology's power by humanity functions as a key player in the moral teaching of *Three Tales*: the temptation of developing technological benefits without first counting the cost acts as the resounding monitory sounded throughout the duration of the work.

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[97] The following points refer to Salzman and Desi's previous discussion of contemporary staged works on page 105.
[98] Shatz, review of *Three Tales* by Steve Reich and Beryl Korot, "A Fighting Man (and Woman's) Work," October 13, 2002, http://www.nytimes.com/2002/10/13/arts/music-a-fighting-man-s-and-woman-s-work.html?pagewanted=all&src=pm (accessed June 26, 2013).
[99] Ross, review of *Three Tales* by Steve Reich and Beryl Korot, "Opera as History," January 6, 2003, http://www.newyorker.com/archive/2003/01/06/030106crmu_music (accessed November 22, 2011).

Audio technologies serve to focus upon inner expression, the characteristic of point two. Repetition, slow-motion sound, and freeze-frame sound work to isolate and impress the emotions of newsmen and interviewees upon the audience. The result of the application of these technologies, however, also halts the progression of the free-flowing narrative. Point three, experimentation with non-linear story-telling, has been observed within the *Three Tales'*s textual examples. While it is possible to create a non-linear narrative in a staged work without the help of technology, technological devices enabled the presentation of the historical narrative and interviews. Technology also allowed the visual insertion of the Genesis text to parallel the audio narrative, and presumably facilitated the splicing and construction of *Three Tales'*s libretto according to the artists' wishes.

In point four, technology functions as the performance medium of *Three Tales*. Technology is accentuated over linear story-telling not only because it disrupts the narrative flow, but also for its encompassing role as the generator of *Three Tales*'s performance and its significance as the work's "subject" and "theme." In point five, three twentieth-century news events focusing upon technology were illustrated as subject material in *Three Tales*. Point six, or the experimentation with time flow, occurs regularly in *Three Tales*. Technology that enables slow motion and repetition is applied visually to scenes and characters, and aurally to the voices of characters and interviewees. Through these devices, a narrative comprised of phrases that were originally outside of the artists' control once again becomes subject to their artistic and thematic objectives. Time is often suspended or slowed so that the spectator is fully impressed by what Reich and Korot seek to communicate.

In summary, the role of technology as "tool," "subject," and "theme" has played significant parts in establishing similarities between *Three Tales*'s narrative and the narrative of

new music theater works. Technology's role as "tool," in the form of projectors, recorders, samplers, and software equipment, enables the spectator to experience the inner expression of characters and interviewees. Its use as "subject" and "theme" prompts moral reflections concerning technology and society, while also emphasizing current events or news stories. Technologies used in concert with new sound-tech developments produced by IRCAM also allow for the visual and sonic experimentation with the passage of time. Such technologies working in tandem have brought *Three Tales* into being, its entity hailed by some as a new, twentieth-first century art form, separate from the traditional opera and musical but recognized and received under the "wide and evolving territory"[100] of new music theater.

Conclusion

In closing, I would like to offer some last points for consideration which briefly debate how the new music theater would best co-exist with operas and musicals. In evaluating whether new music theater should be united to or exist in parallel with operas and musicals, we first turn to investigate a conversation held between Reich and Bruce Duffie in 1985. In this interview, Reich revealed more of his thoughts about opera and hinted at the differences between operas and other musically staged works. The interview proceeded as follows:

Duffie: Are you ever going to write an opera?

Reich: So far, no. Maybe. I'll never be an opera composer. I might be a composer who writes an opera or two, or a piece of music theater of one sort or another.

D - What's the difference?

R - The difference is between, let's say, Wagner and Stravinsky. One of them is an opera composer, and one of them is a composer who wrote *The Rake's Progress*, and *Renard* and *Mavra*.

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[100] Salzman and Desi, *The New Music Theater*, 5.

D - What's the difference between opera and music theater?

R - Nowadays, quite a bit … I think "music theater" … is a term to accommodate all the new forms that are arising now, where the word opera seems somehow misplaced.[101]

Reich's responses are indicative of his comfort with the current shift some modern composers have made to differentiate their staged musical works from traditional opera. Eight years after the interview was conducted, Reich developed his own new music theater works in *The Cave,* and later in *Three Tales*. While the composer seems content with the idea of generating works that would be identified as new music theater rather than traditional opera, scholars are not as keen to make the differentiation. The view of author Daniel Snowman about the contemporary opera scene is an example of this. In an excerpt from his book *The Gilded Age: A Social History of Opera,* the author advocates the acceptance of staged works that do not initially present as a standard opera:

> Perhaps it is safer not to attempt too rigid (or too loose) a definition; opera, like the proverbial elephant, is something most of us recognize when we come across it but would be hard-pressed to describe precisely to someone who had not. So I am not urging a broad, all-embracing new definition of opera; just suggesting we should avoid too narrow a one.[102]

In the course of his investigations into twentieth and twenty-first century operas, Lindenberger defines *Three Tales* as a "high-tech opera."[103] He appears to equate Reich's production of the work as a fulfillment of the *de facto* charge long held over composers to produce at least one opera, if not several. Lindenberger states:

> Over the centuries, prominent composers have ordinarily been expected to find their way to opera. Even the anti-vibrato Steve Reich has pursued his own idiosyncratic operatic path, first with *The Cave*… and now more ambitiously with *Three Tales*.[104]

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[101] Steve Reich, interview with Bruce Duffie, "Composer Steve Reich: Two Conversations with Bruce Duffie," October 1985, http://www.bruceduffie.com/reich.html (accessed January 23, 2013).
[102] David Snowman, *The Gilded Age: A Social History of Opera* (London: Atlantic Books, 2009), 8.
[103] Lindenberger, *Situating Opera*, 99.
[104] Ibid.

The question arises, then, as to whether traditional operas, such as those associated with the nineteenth century, may coexist with works like *Three Tales* beneath the same genre categorization. On one hand, traditional operas could benefit from the new lifeblood given to the opera genre if works like *Three Tales* were associated with them. New music theater works might lend a modernity or "hipness" to traditional operas if all types of staged works were grouped together. Audiences appreciative of new music theater may also be roused to experience the operatic forerunners of such works. In addition, a creative exchange may occur between the traditional opera style and new music theater which benefits the artistic evolution and societal relevance of both art types.

An integration of traditional opera with new music theater may, on the other hand, impede or completely negate the artistic progression of both groups. High-tech new music theater characteristics may diffuse themselves into the essence of traditional opera to such an extent that it no longer becomes recognizable. The aspects with which audiences have identified opera may be erased entirely, resulting in the obliteration of a genre that has lasted over four centuries. Likewise, the affiliation of opera with new music theater may deter audiences from exploring new music theater works due to their dislike of the style or social/cultural aspects that are often linked with traditional opera.

A break between opera and new music theater may spur more composers to freely experiment with new conceptions of staged works, unfettered by the historical and musical precedents of opera to which new works might be compared and criticized. For the moment, it appears that a differentiation between traditionally staged works and new music theater appears beneficial. Traditional works afford the audience familiar connections made by the presence of actors, a conventional narrative, and the keeping of a particular vocal style. New music theater

works, on the other hand, allow composers an alternative to observing strict artistic confines defined by history. The genre encourages and even expects the boundaries of staged theater to be probed, and for new tools, particularly technological ones, to be used without reservation for the sake of presenting new artistic concepts.

In the case of *Three Tales*, technology introduced new opportunities for audio and visual experimentation which subsequently led to a new type of artistic experience for the spectator. Reich and Korot's pursuit of technological possibilities in works like *Three Tales* has begun to represent an artistic model that may, as Peter Culshaw noted, "open up intriguing possibilities for twenty-first century opera."[105] As current society becomes more inveterately technological and increasingly mesmerized by high-tech developments, *Three Tales* may serve as a salient precedent for twenty-first century developments in opera and staged musical works.

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[105] Steve Reich, interview by Peter Culshaw, "Apocalyptic Video Opera Revival," February 12, 2010, http://www.theartsdesk.com/new-music/interview-steve-reich-three-tales (accessed September 29, 2012).

CONCLUSION

*Three Tales'*s objective has championed the relatively disesteemed and unsung topic of the negative consequences that may occur should the application of technology run unchecked. While the artwork of *Three Tales* focuses upon this technological direction, this thesis has sought to investigate how *Three Tales*'s technological focus has worked to form the artwork into its existing state. This thesis will conclude by examining two final areas that concern current technological issues and *Three Tales*. The first area will highlight the advancements of the technologies discussed in Tale III. The subsequent reflection will consider technology's empowerment of electronic media to the detriment of art music and live performances, and the recent shift of new art types, such as *Three Tales*, to reassume influence by utilizing media technologies.

The fulfilled technological tragedies of Tales I and II act as admonitory forerunners to the technologies discussed in Tale III. Unlike Tales I and II, however, the final result that may occur in the fields of cloning, robotics, artificial intelligence, and cyborg technologies remains unknown. We will, therefore, briefly evaluate how these technologies have advanced in the past twelve years in order to analyze whether concern is warranted over their development and intended purpose.

In the cloning sector, an event occurred at the beginning of this year involving the generation and ability to sustain human stem cells. According to the *New York Times*, researchers from the Oregon Health and Science University succeeded in using cloning to create human embryonic stem cells. Andrew Pollack reports that skin cells from an eight-month old baby with a genetic disease were fused with donated human eggs to "produce embryos that were genetically identical to the eight-month old. Stem cells were then extracted from those

embryos."[1] The researchers who published their findings in the scientific journal *Cell*, report that

their research aim was to advance therapeutic cloning, or the means by which stem cells are

generated to be "genetically identical to those of a particular patient."[2] The positive outcomes of

this research may eventually lead to an availability of stem cells that can be grown as

replacement tissue to treat diseases, or to create diseased or damaged organs.[3] The potentials of

this bio-technology, however, which enables cloned human embryos to be sustained long enough

for stem cell extraction, indicates that human reproductive cloning is an ever-closer reality.[4]

Several concerns have surfaced because of this, including the possibility of genetically

engineering embryos, "the creation of human/animal chimeras," and harvesting organs from

cloned babies.[5] This advancement also raises the issue of protecting the health and respect of

women donors. Wesley J. Smith of the *Weekly Standard* writes that cloning will "encourage

treating woman's reproductive assets as marketable commodities."[6] Since it appears that the

quality of eggs may vary between women, Wesley surmises that a "concerted search may now be

on for women who can produce prime cloning-quality eggs."[7] The egg harvesting process itself

also carries various risks, such as infections, fertility loss, stroke, and even death.[8] Smith made

conclusions about these new developments that are similar to Reich and Korot's general thoughts

about technology. He states that "because these experiments offer the potential to advance

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[1] Andrew Pollack, "Cloning Is Used to Produce Embryonic Stem Cells," *New York Times*, May 15, 2013, "science," http://www.nytimes.com/2013/05/16/science/scientists-use-cloning-to-create-embryonic-stem-cells.html?_r=0 (accessed June 16, 2013).

[2] Pollack, "Cloning is Used to Produce Embryonic Stem Cells," http://www.nytimes.com/2013/05/16/science/scientists-use-cloning-to-create-embryonic-stem-cells.html?_r=0 (accessed June 16, 2013).

[3] Ibid.

[4] Ibid.

[5] Wesley J. Smith, "The Arrival of Human Cloning; It's here. Don't get used to it." *The Weekly Standard*, Vol. 18 No. 35 May 27, 2013, http://0-www.lexisnexis.com.maurice.bgsu.edu/hottopics/lnacademic/ (accessed June 16, 2013).

[6] Smith, "The Arrival of Human Cloning; It's here. Don't get used to it," http://0-www.lexisnexis.com.maurice.bgsu.edu/hottopics/lnacademic/ (accessed June 16, 2013).

[7] Ibid.

[8] Ibid.

scientific knowledge, they will tempt us always for the best reasons to set aside our convictions about the intrinsic dignity of all human life."[9]

In the realm of robotics, *Defense and Aerospace Week* discuss a new report which claims that the world robotics market and related products is to reach an estimated value of $30 billion at the start of 2016.[10] Engineers are producing robots to meet future needs world-wide in the following six domains: domestic service, industry, military, professional services, security, and space.[11] An example is the American robotics physicist, Mark Tilden, who is creating a life-sized humanoid robot at his design studio in Sai Kung, China.[12] Tilden states that his goal is to provide a commodity for a Chinese market desperate to be freed of the laborious and repetitive tasks of everyday life.[13] Tilden has already created such a prototype which could, for example, assist with shopping or be a personal assistant.[14] The robot maintains a battery life of 186 hours and costs around $1,000.[15]

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[9] Smith, "The Arrival of Human Cloning; It's here. Don't get used to it," http://0-www.lexisnexis.com.maurice.bgsu.edu/hottopics/lnacademic/ (accessed June 16, 2013).

[10] *Defense and Aerospace Week*, "Robotics; Global Robotics Market Set for Huge Growth," August 24, 2011, report from *Companies and Markets.com*, http://pq9se9hp4e.search.serialssolutions.com/?ctx_ver=Z39.88-2004&ctx_enc=info%3Aofi%2Fenc%3AUTF-8&rfr_id=info:sid/summon.serialssolutions.com&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&rft.genre=article&rft.atitle=Robotics%3B+Global+Robotics+Market+Set+for+Huge+Growth%3A+companiesandmarkets.com&rft.jtitle=Defense+%26+Aerospace+Week&rft.au=Anonymous&rft.date=2011-08-24&rft.pub=NewsRx&rft.issn=1945-6476&rft.eissn=1945-6484&rft.spage=46&rft.externalDocID=2427184451&paramdict=en-US.

[11] *Defense and Aerospace Week*, "Robotics; Global Robotics Market Set for Huge Growth," http://pq9se9hp4e.search.serialssolutions.com/?ctx_ver=Z39.88-2004&ctx_enc=info%3Aofi%2Fenc%3AUTF-8&rfr_id=info:sid/summon.serialssolutions.com&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&rft.genre=article&rft.atitle=Robotics%3B+Global+Robotics+Market+Set+for+Huge+Growth%3A+companiesandmarkets.com&rft.jtitle=Defense+%26+Aerospace+Week&rft.au=Anonymous&rft.date=2011-08-24&rft.pub=NewsRx&rft.issn=1945-6476&rft.eissn=1945-6484&rft.spage=46&rft.externalDocID=2427184451&paramdict=en-US.

[12] Lana Lam, "Humanoid robots add to fun at HK talks on futurism; Designer creating prototypes of life-size droids says they could be made to shop, clean and cook," *South China Morning Post*, November 25, 2012, http://0-www.lexisnexis.com.maurice.bgsu.edu/lnacui2api/api/version1/getDocCui?lni=574K-N6P1-JC8V-1257&csi=11314&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true (accessed July 22, 2013).

[13] Lam, "Humanoid robots add to fun at HK talks on futurism; Designer creating prototypes of life-size droids says they could be made to shop, clean and cook," November 25, 2012, http://0-www.lexisnexis.com.maurice.bgsu.edu/lnacui2api/api/version1/getDocCui?lni=574K-N6P1-JC8V-1257&csi=11314&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true (accessed July 22, 2013).

[14] Ibid.

[15] Ibid.

The most fascinating robotic developments, however, involve their function and interaction within society. Illah Nourbakhsh, author of *Robot Futures,* reports that scientists are no longer concerned with making robots that imitate humans.[16] Instead, they strive to make machines that can perceive and evaluate their environments and then "act to push back on the world and make it change."[17] Matthew Mason, director of the National Robotics Engineering Center at Carnegie Mellon University, told the *Associated Press* that at one time, robots were being developed in order to perform jobs that many humans despise.[18] Today, however, robots are being built in order to function alongside humankind.[19] According to Mason, this scenario may include robots that are equipped to ease the daily tasks of the elderly, the sick, or assist in surgical operations.[20] Robots are now being programmed to ask questions in order to learn, and in the near future, it is hoped that robots will make use of the internet in order to enhance their information base.[21] A new type of robot called a "co-bot" has the ability to exchange information between sister machines and then deduce which robot is best suited to tackle problems.[22]

Cyborg technologies are becoming a greater reality on both practical and convenience levels. Companies such as Vuzix and Google are poised to release new technology called "smart

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[16] Illah Nourbakhsh, "Man's New Best Friend? Personal robots will be a ubiquitous part of our lives one day, predicts Carnegie Mellon University robotics professor Iillah Nourbakhsh. In his new book, *Robot Futures*, he explores the pitfalls and possibilities," *Pittsburgh Post Gazette*, March 3, 2013, http://0-www.lexisnexis.com.maurice.bgsu.edu/hottopics/lnacademic/ (accessed June 16, 2013).

[17] Nourbakhsh, "Man's New Best Friend? Personal robots will be a ubiquitous part of our lives one day, predicts Carnegie Mellon University robotics professor Iillah Nourbakhsh. In his new book, *Robot Futures*, he explores the pitfalls and possibilities,"

[18] *Associated Press,* "Robot institute attracts presidential visit," June 24, 2011, http://www.washingtontimes.com/news/2011/jun/24/robot-institute-attracts-presidential-visit/?page=all (accessed July 22, 2013).

[19] *Associated Press,* "Robot institute attracts presidential visit," http://www.washingtontimes.com/news/2011/jun/24/robot-institute-attracts-presidential-visit/?page=all (accessed July 22, 2013).

[20] Ibid.

[21] Ibid.

[22] Ibid.

glass" this summer and autumn, respectively.[23] Jamie Carter of the *South China Morning Post* reports that the glasses display information, directions, and video footage which are supplied to the viewer's right eye via a tiny transparent screen.[24] Such high-tech eye glasses allow the viewer to record videos, check email, and search the web, all by using voice commands.[25] The Glass Explorer Edition produced by Google, will even enable wearers to navigate a city by "overlaying Google Maps into real life."[26] Apple and Samsung companies, however, have developed the Smart Watch, which may become a highly popular "cyborg" purchase that could rival the smart glass concept.[27] Besides telling time, these watches will be equipped to make calls, text and web search, make purchases, and remotely control home entertainment lights and heating.[28] According to Carter, ABI research has predicted that 485 million people will be wearing a type of cyborg device within five years, from "web-connected pacemakers to wearable cameras," and even t-shirts that use body heat to charge cell phones.[29]

    Another cyborg advancement is a military cyborg suit, currently being explored by the U.S. Office of Naval Research. Robert Waugh reports that the suit can determine whether a sailor has been injured or exposed to nuclear or biological agents. These "intelligent uniforms" have electrical sensors wired into the fabric which can detect blood, radiation, and chemical poisons.[30] BAE's, or Body Wearable Antennas may also be wired in the suits that will enable video, voice commands, and GPS data to be transmitted, even during the heat of battle when a

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[23] Jamie Carter, "Web feats; From voice-activated screens to smart glass, a wave of new technology is set to launch this year," *South China Morning Post*, April 12, 2013, http://0-www.lexisnexis.com.maurice.bgsu.edu/hottopics/lnacademic/ (accessed July 22, 2013)

[24] Carter, "Web feats; From voice-activated screens to smart glass, a wave of new technology is set to launch this year," http://0-www.lexisnexis.com.maurice.bgsu.edu/hottopics/lnacademic/ (accessed July 22, 2013).

[25] Ibid.

[26] Ibid.

[27] Ibid.

[28] Ibid.

[29] Ibid.

[30] Rob Waugh, "Hello Sailor! New American Navy uniforms will test their urine to see if they're under radioactive or chemical attack," *Mail Online*, April 30, 2012, http://www.dailymail.co.uk/sciencetech/article-2137347/Cyborg-New-American-military-uniforms-test-soldiers-urine-warn-nuclear-biological-attack.html (accessed July 22, 2013).

soldier may be forced into a recumbent position.[31] Waugh reports that some U.S. soldiers will also have another, more intimate cyborg-type advantage: contact lenses. Designed by the company Innovega, these special lenses will focus 3-D battlefield information from drones and satellites directly upon the soldier's eye.[32]

On the more practical side, devices made to replace human biological parts have become more prolific. Apart from prosthetic limbs, bionic arms, and 3-D hip-joint systems, other exceptional devices now include the development of mechanized/electronic artificial hearts,[33] lungs,[34] and even an artificial kidney,[35] although further tests are required to ascertain whether this organ will function in the human body. An article in London's *Independent*, however, hailed the arrival of Rex, the world's first bionic man. Rich Walker, head of scientific team that designed Rex, reported that the bionic man proves that 60-70% of the human body can be rebuilt.[36] Rex is missing particularly important organs, such as the brain and stomach, and his lungs and kidneys are still in the prototype stage.[37] Nevertheless, Rex does possess effectively working eyes, a heart, a pancreas, feet, ears, a trachea, a spleen, hands, arms, and blood.[38] These artificial organs work via a variety of technological helps such as video cameras, electrodes, algorithmic devices, chips, and Bluetooth communication devices.[39] While it is hoped that

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[31] Waugh, "Hello Sailor! New American Navy uniforms will test their urine to see if they're under radioactive or chemical attack," http://www.dailymail.co.uk/sciencetech/article-2137347/Cyborg-New-American-military-uniforms-test-soldiers-urine-warn-nuclear-biological-attack.html (accessed July 22, 2013).
[32] Ibid.
[33] Sumitra Deb Roy, "Artificial hear now in India, price Rs 1 crore," *Times of India*, September 23, 2012, http://0-www.lexisnexis.com.maurice.bgsu.edu/hottopics/lnacademic/ (accessed July 24, 2013).
[34] Paul Cullen, "First artificial lung procedure on Irish child," *Irish Times*, June 24, 2013, http://0-www.lexisnexis.com.maurice.bgsu.edu/hottopics/lnacademic/ (accessed July 24, 2013).
[35] Sandy Kleffman, "Artificial kidney may liberate patients," *Dayton Daily News* (Ohio), May 7, 2013, http://0-www.lexisnexis.com.maurice.bgsu.edu/hottopics/lnacademic/ (accessed July 24, 2013).
[36] Kevin Rawlinson and Tom Goulding, "Meet Rex, the World's First Bionic Man," *The Independent*, February 6, 2013, http://0-www.lexisnexis.com.maurice.bgsu.edu/hottopics/lnacademic/ (accessed July 24, 2013).
[37] Rawlinson and Goulding, "Meet Rex, the World's First Bionic Man," http://0-www.lexisnexis.com.maurice.bgsu.edu/hottopics/lnacademic/ (accessed July 24, 2013).
[38] Ibid.
[39] Ibid.

several of Rex's organs, such as the kidney and pancreas, will reduce the problems and

limitations of organ loss, Steven Hsiao of John Hopkins University admits that more effort is

required before artificial organs are able to respond to the relay sensory information system of

the body.[40]

While artificial intelligence inside a Rex-type body is still deemed a feat for far future

generations, a study conducted by Kaspersky Lab, a European Global Research and Analysis

Team, reports that general developments in artificial intelligence will largely alter how society

functions in recent years to come.[41] Kaspersky Lab predicts that by 2030 "the future of IT will

dramatically shift…as cloud computing, augmented reality, quantum computing, artificial

intelligence and nanotechnology evolve into the next generation of information technology."[42]

Despite his harrowing predictions that technological advancement will generate increased

security challenges, cyber threats, and humanity's abandonment of common sense, Magnus

Kalkuhl, director of Kaspersky Lab's research team, remains ultimately upbeat over the benefits

technology will reap for humanity in the future.[43] On a positive note, artificial intelligence is

being developed in more specific ways for the medical industry and for personal use. Gregory

Lamb of the *Christian Science Monitor* reports that the IRobot Corporation is developing a robot

known as "Ava" which will help doctors evaluate patients from thousands of miles away.[44] Ava

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[40] Rawlinson and Goulding, "Meet Rex, the World's First Bionic Man," http://0-
www.lexisnexis.com.maurice.bgsu.edu/hottopics/lnacademic/ (accessed July 24, 2013).
[41] *UAE Government News*, "Kaspersky Lab, IT Security in 2030: A Forward Look at Tomorrow's Technologically
Driven Society," January 8, 2013, http://0-www.lexisnexis.com.maurice.bgsu.edu/hottopics/lnacademic/ (accessed
July 22, 2013).
[42] *UAE Government News*, "Kaspersky Lab, IT Security in 2030: A Forward Look at Tomorrow's Technologically
Driven Society," http://0-www.lexisnexis.com.maurice.bgsu.edu/hottopics/lnacademic/ (accessed July 22, 2013).
[43] Ibid.
[44] Gregory Lamb, "How artificial intelligence is changing our lives," *Christian Science Monitor,* September 16,
2012, http://www.csmonitor.com/Innovation/Tech/2012/0916/How-artificial-intelligence-is-changing-our-lives
(accessed July 22, 2013).

is equipped with a video screen and is fully capable of navigating hospitals on its own.[45] Once a doctor has "visited" a patient with Ava, he can tap a new location using a computer map, which gives Ava its new coordinates whereby it can locate the next patient.[46]

On a more commercial level, Lamb reveals that research is being conducted in order to install artificial intelligence systems into "smart homes."[47] A computer system, nicknamed by its supporters as the "benevolent nanny," will monitor a person's movements and actions within the home and calculate whether they have taken their medication or gotten enough sleep or exercise.[48] The benefits of this technology may particularly impact senior citizens who could have the opportunity to lead independent lives at home for a longer period of time.[49] Plans are also slated for making Virtual Personal Assistants, or artificially intelligent machines that aid the general populace in a variety of areas. Such machines, Lamb reports, will help "humans do tasks such as weigh health care alternatives, plan a vacation, buy clothes, or drive your car."[50]

In a little over a decade, each technology sector that was explored in Tale III has experienced dramatic progress. Cloning, which is a reality for generating animals, may also be developed enough within the next few decades to meet human physical needs or to produce human life itself. Advances in the field of robotics could generate a new group of robotic participants in several facets of society, altering the expectations and interactions of humans with their fellows, and creating the possibility of augmenting life conveniences and aiding the elderly. Cyborg technologies have the possibility to put humanity into contact with more information at a faster rate, and some devices may work to enhance our physical and mental abilities. Artificial

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[45] Lamb, "How artificial intelligence is changing our lives,"
http://www.csmonitor.com/Innovation/Tech/2012/0916/How-artificial-intelligence-is-changing-our-lives (accessed July 22, 2013).
[46] Ibid.
[47] Ibid.
[48] Ibid.
[49] Ibid.
[50] Ibid.

intelligence seems to offer the most benefit where a human presence is missing. A.I., for example, may allow a health care specialist to interact with patients regardless of distance restrictions, or provide care to the elderly or sick who have no assistance. While these technologies offer, perhaps, irresistible benefits, the same technologies may exert undue control over society, nullify the privacy of the individual, and deprive humans of developing problem-solving skills and character traits such as patience and perseverance.

Ultimately, Reich and Korot's discussion of the technologies in Tale III prove to be insightful. Each technology presented has continued to be developed and refined by researchers and producers in order to become viable parts of future societal life. Although such current technologies are unknown quantities and they present humanity with incredible potential, they confront humankind with the same issue of "eating from the Tree of Knowledge." Technologies such as cloning, robotics, cyborg technology, and artificial intelligence continue to propose both threats and benefits to society. Instead of considering the negative potentials of these technologies and how to safeguard against them, it appears that in many instances, scientists and researchers are given free rein to push new technologies forward despite the negative consequences they may yield. This insistent and seemingly blind pursuit of technological gains is exactly what Reich and Korot caution against in *Three Tales*. While cloning or artificial intelligence may not appear as inherently catastrophic as the atomic bomb, they harbor the potential to alter society's structural roots in a powerful way. As these technologies develop, they generate gradual, subtle change while their positive potentials dampen the urgency for communication over their ultimate course and purpose in human community. This suggests that the considerations presented in *Three Tales* do and will continue to carry weighty relevance in times to come.

Having considered the current import of the technological discourse presented in *Three Tales*, we turn from discussing particular technologies to evaluating the meaning and significance of using media technologies as a tool to generate art. This final subject will analyze the balance of power between the media and the arts in present society, consider how electronic technologies in the mid-twentieth century empowered the media and forsook the arts, and analyze how technology functions in works like *Three Tales* to unite the power and influence of electronic media to art and independent musics.

Roger Johnson brings several levels of experience to the discussion of the interactions between media technology and society. Johnson is a researcher and writer in "contemporary and popular music, media and technology, cultural studies, and music in higher education," and has also been active as a composer.[51] In his 1994 article, "Technology, Commodity, Power," Johnson brings insight into the concepts of societal power, music, and the current interplay between music and the electronic media. The article concludes with an evaluation of how these subjects have affected and prompted a response from the realm of modern art/independent music.

Johnson opens his discussion by relating how media technologies, such as radio, television, and video began to assert influence due to their ability to "diminish the gap" between the "original event and the receiver."[52] It is a continued trend of electronic media, Johnson observes, to gradually close this "symbolic gap between the sender and the receiver and the resulting sense of invisibility and inaudibility of the intervening technology."[53] The author articulates that these improvements enchanted the public into thinking that the information

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[51] Thomas A. Regelski and Jerry Gates, eds., *Music Education for Changing Times: Guiding Visions for Practice* (Dordrecht: Springer Science and Business Media B.V., 2009), under "contributors," xvii.
[52] Roger Johnson, "Technology, Commodity, Power," *Computer Music Journal* 18, no.3 (Autumn 1994): 27.
[53] Johnson, "Technology, Commodity, Power," 27.

received was "complete and seemingly unaltered."[54] Johnson's evaluation of the results of this

phenomenon upon the arts is stated below:

> The electronic media, then, have gradually assumed the power and authority that had previously been centered in the various public arenas and institutions, concert halls, theaters, and the press. More important, they did this … [by] closing the gap and reconstructing the relationship between the information and the receiver.[55]

Johnson then addresses the issue of power and states that throughout time, the arts have

sought their presentation in "empowered sites," or those places deemed of social and economic

value.[56] In turn, those in power have sought to utilize the arts in order to represent their authority

and augment their power.[57] Johnson then puts the concept of power within today's context:

> Electronic media are clearly the empowered sites of our own time. They hold the power of communication and the control of information. They originate in science and engineering, and industry, which are of course the very core of power in an industrial economy.[58]

If the electronic media qualifies as a symbol of power and authority in society, then the

application of media technologies in *Three Tales* is an example of an art work that has re-

appropriated, rather than relinquished, avenues of societal influence. The visual and audio

technologies used in *Three Tales* work similarly to the electronic media by removing the barriers

of time and location between the spectator and the source of information. The spectator of *Three

Tales*, for example, may experience past events and characters as well as the personalities and

opinions of interviewees of current times. In a discussion of the technologies involved in *Three

Tales*'s close compositional relative, *The Cave*, Reich and Korot compare their technology use

with popular, electronic media forms: Korot's video to "urban folk art" or MTV, and Reich's use

of samplers and keyboards to the technologies used to produce rock music. The media

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[54] Johnson, "Technology, Commodity, Power," 27.
[55] Ibid.
[56] Johnson, "Technology, Commodity, Power," 29.
[57] Ibid.
[58] Ibid.

technologies used in *Three Tales,* as well as other new music theater works, are examples of the ways electronic media can stimulate new, artistic concepts if their influence and relevance within society is embraced rather than scorned. According to Johnson, this "decentralization" of power away from the entertainment and broadcasting industries and into the hands of lesser-heard voices is a positive event.[59] The fact that *Three Tales* is an example of this continues to extend the significance of technology within the work. Reich and Korot have recognized and re-appropriated the empowered site of electronic media in order to express a societal issue they deem to be of concern. *Three Tales* illustrates the concept that information and popular media need not be the only areas empowered by technology; the creators of independent art and music may avail themselves of it as well.

*Three Tales* does not, however, merely re-appropriate popular media technologies to use in expected ways; it uses technological capabilities and then intersects with them, as was observed through several examples in chapter two. Johnson discusses this phenomenon of the alteration and manipulation of electronic media products. He writes:

> Disempowered peoples, particularly minority groups, often reinterpret the signs and codes of cultural commodities for their own interests, turning the cultural and ideological content of these products around completely. In this sense, technology represents a power and authority to be engaged, humanized, reconstructed, challenged, infiltrated, or disempowered. Some media artists and consumers become like hackers— invading and manipulating the systems, challenging authority, seizing power.[60]

Johnson does not mention the musics that specifically pertain to the previous statement, but the characteristics of *Three Tales* fit Johnson's concept. *Three Tales* is part of a non-mainstream, emerging musical genre, and its perspective on technology questions the status quo of current technology use, thus relegating the ideology of *Three Tales* to a minority status.

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[59] Johnson, "Technology, Commodity, Power," 31.
[60] Ibid.

Having used the electronic media of video and amplified, recorded speech, *Three Tales*

manipulates, or reinterprets if you will, the resulting products. Visual software technologies, for

instance, alter original historical film footage in order to isolate facial expressions and highlight

specific parts of main events. Some of the newest developments in sound technologies intervene

to transform the originally recorded speech deliveries of interviewees. In this way, the power of

current media technologies becomes subject to the artistic vision, objectives, and requirements of

*Three Tales*. *Three Tales* serves as one example of an independent artwork that has not only

appropriated a socially empowered site, but reshaped it to express a theme which is often passed

over by the social majority.

The empowerment of the artwork, however, is not all that remains to this exchange

between *Three Tales* and technology. Technology and its empowerment of electronic media also

positively and negatively affect the artist's output, as well as the range of art types and ideas that

are produced. Regarding the first point, Johnson elucidates that, on the beneficial side, new

technologies used in musical compositions have

> infused music with new resources. They have revolutionized our timbral material and our
> abilities to simulate, control, and manipulate acoustical/environmental conditions. They
> have allowed composers to work directly with sound, rather than notational
> representations, and have provided them with better possibilities to realize the
> compositional intention.[61]

These positive aspects also have disadvantages, according to Johnson, in that electronic

sound is still considered inferior to acoustic sound, it causes live performances to lose their

suspenseful unpredictability, and electroacoustic music challenges "musical autonomy and

authorship."[62] In addition, electroacoustic music may be often reduced to relying upon the

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[61] Johnson, "Technology, Commodity, Power," 30.
[62] Ibid.

developmental strides as well as advantages and disadvantages of computer hardware and

software.[63] Regarding these points, Johnson writes:

> The products of these systems are also increasingly less individual…is not the rhetoric of
> the great individual artist and the permanent artistic document being eroded before our
> eyes and ears?[64]

To summarize these ideas of technology's impact on works like *Three Tales*, I refer again

to a comment of Johnson's:

> The new musical technologies, software, and networks of our own time both empower
> composers and play a significantly determining role in the music they produce.[65]

Reich and Korot's choice to use empowered sites in *Three Tales* also subjects the work

both to various assets and handicaps, such as the ability to bend electronic media to the

objectives of art, or the artistic vision being confined to certain parameters of the employed

technological or media tools. Through their technology choices, Reich and Korot were given a

measure of control in particular areas and deprived of it in others. For the artists, the use of

empowered sites was obviously worth any artistic or expressive losses that may have been

incurred.

The question remains to be explored, however, of the ways *Three Tales* has been

empowered or disempowered by technology's enablement of electronic media within the work.

Empowerment does occur through the use of historical video footage and interviews. Such media

fosters historical accuracy, as well as a measure of prestige by representing renowned, scientific

individuals. The use of electronic media also empowers *Three Tales* by presenting its subject

through familiar means used for communication and entertainment. Points that may detract from

*Three Tales*'s influence are its unsettling topic, dissonant, restless music, electronic distortions of

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[63] Johnson, "Technology, Commodity, Power," 30.
[64] Ibid.
[65] Ibid.

the human voice, and simple visual graphics. Only the last two factors pertain to the use of electronic media. Reich used an empowered media site when he chose to record the spoken voice, yet he altered its presentation in a way that may be described as ominous and/or physically and emotionally jarring. While Korot used the empowered media site of historical video footage and animated visual clips, the manipulations of the footage may impress as distracting, and the austere graphics as unspectacular when compared with current film and television examples. These aspects have the potential to sabotage *Three Tales*'s impact and dissemination. One may conclude, therefore, that it is not purely the use of an empowered site that ensures the influence of an artwork, but the combination of artistic choices with an empowered site that may generate the most substantial effect.

Ultimately, however, *Three Tales* acts as a standard-bearer for later works which will use the prevalent and familiar tools of media to generate art. Its use of electronic media has already blazoned a path in twenty-first century art by showcasing the new concept of the documentary digital video opera. This is in keeping with Johnson's view that the "decentralization"[66] of empowered sites will encourage "new opportunities, new networks, new audiences, and interesting ways for music with independence and integrity [to] exist and even thrive in our culture."[67] Thus, this decentralization, according to Johnson, illustrates that the "opportunity is here to build on the power of the diversity and multiplicity that are at large in our culture."[68] *Three Tales* is one example of the fruit borne from the prevalent technological influences upon modern society. While its example may only engender works that mimic its use of empowered sites by implementing technology for its own sake, or to fulfill societal expectations, still other artistic pioneers may tread in the footprints of *Three Tales*'s creators, who utilized technology's

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[66] Johnson, "Technology, Commodity, Power," 31.
[67] Ibid., 31-32.
[68] Johnson, "Technology, Commodity, Power," 32.

malleability and strength to enable cultural connections through familiar media while simultaneously achieving the artistic and thematic objectives of their art.

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