

Bioethics and Medical Issues
in Literature

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Bioethics and Medical Issues
in Literature

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Preface

Bioethics and Medical Issues in Literature, in the Pedagogy in Medical Humanities series, is updated from the 2005 first edition used worldwide in all levels of education. The revisions reflect how fast science is taking us into the twenty-first century. It draws on the discipline of bioethics (founded in the late 1960s) and the field of literature and medicine (established in the mid-1970s). Readers will study both the technical and human side of science while gaining a respect for diversity and the art of medicine. Although there are historical references all the way back to ancient times, the selections span a 200-year period from the birth of modern medicine in the early nineteenth century to the present.

The 10 works of accessible fiction in five thematic chapters can be read alone or in chronological order because each successive work builds on concepts that precede it. For example, in chapter 1, “Technology’s Creature,” Mary Shelley’s *Frankenstein* and Nathaniel Hawthorne’s “Rappaccini’s Daughter” describe science taking precedence over individual human rights. It is not a great leap into chapter 2, “A Brave New World,” to discuss Aldous Huxley’s description of dispassionate eugenics in *Brave New World* and Robin Cook’s imagined commercial avarice in the human transplant industry in *Coma*.

In chapter 3, “Contagions/Isolations,” Albert Camus’ *The Plague* reveals the unrelenting nature of plague, initiating philosophical discussions about man’s morality in an atmosphere of every-man-for-himself. David Feldshuh’s *Miss Evers’ Boys* describes a baseline syphilis study on blacks, without their informed consent, who were denied the standard of care for whites. The main theme in chapter 4, “Illness and Culture,” as described in Ken Kesey’s *One Flew Over the Cuckoo’s Nest* and Alice Walker’s *Possessing the Secret of Joy*, is that illness can be culture-specific and that diagnostic methods and treatment options change throughout the years. At last, chapter 5, “End of Life—Disease and Death,” shows in John Updike’s *Rabbit at Rest* and Margaret Edson’s *Wit*, how, respectively, a self-indulgent man shortens his life and a cancer-stricken woman deals with psychic and physical pain as she nears the end of hers. There is a vast range of topics, including scientific rivalry, mental illness, cul-

tural rituals, obesity, bioterrorism, and stem cell research, listed in the comprehensive index.

Each selection is placed in an historical context and has a plot synopsis and literary analysis. A glossary gives clear definitions of literary, scientific, and medical terms, providing easy access to the non-specialist. The chronology is a useful timeline of events. Suggestions are provided to provoke lively discussions and to stimulate further reading. In a skills-across-the-curriculum approach, this book puts a human face on medicine as science forges ahead. What science cannot explain, literature explores.

A running theme throughout *Bioethics and Medical Issues in Literature* is the Hippocratic need to be useful, and in this vein I thank Linda Lucas for her careful proofreading and Dr. Brian Dolan for his help in developing this second edition, offering a way to understand how to balance advancing technology with individual human rights as well as responsibilities.

Chronology of Events in Literature, Medicine, and Science

These Western medicine selections relate to the works included here. This is not a comprehensive timeline, but to provide context some unrelated historical events are shown.

B.C.

- c. 4500 Sumerian and Egyptian Cultures begin.
- c. 3000 Writing invented.
- c. 450 Hippocrates, the Father of Medicine, wrote *Corpus Hippocrates*, a systematic and scientific approach to medicine; his definition of a doctor's position and role in society is incorporated into his Hippocratic Oath, central to medicine today.

A.D.

- 129 Birth of Galen Pergamum, Greek physician called the Father of Sports Medicine, who refined and organized the humoral system of medical knowledge and gave an account of the skeleton and the muscles that move it.
- 476-1000 Fall of Western Roman Empire; the Dark Ages begin when classical learning and literacy decline.

c.750-1485—The Middle Ages

- 1037 Death of Ibn Sina (Avicenna), author of *Canon of Medicine*.
- 1137 St. Bartholomew's Hospital founded in London.
- 1270 Invention of spectacles in Venice.
- 1336-1453 Hundred Years War.
- 1340 End of the Plague of Justinian, following trade routes to France and Italy, killing 70,000.
- 1347-1352 The Black Death (the Bubonic Plague) hits England the hardest in 1348-49, killing 40 percent of the population; in western

- Europe one-third of the population (20 million people) died.
1440-50 Printing invented, spreading medical knowledge.
c. 1455 Gutenberg's Bible printed at Mainz.

1485-1660—The Renaissance

- 1492 Discovery of America by Columbus.
1494 Syphilis appears in Europe.
1493-1541 Paracelsus, German alchemist and physician called the Father of Pharmaceuticals, introduces remedies derived from chemicals but stressed that nature heals.
1505 Royal College of Surgeons established in Edinburgh.
1510-90 The great surgeon Ambroise Paré writes about his work.
1519-22 Magellan circumnavigates the world, a voyage plagued by scurvy.
1532 London bills of mortality become our present-day death certificates.
1543 Nicolaus Copernicus writes of a sun-centered planetary system; Andreas Vesalius publishes his great work on human anatomy, *De Humani Corporis Fabrica*.
1605 Champlain defines scurvy during an autopsy.
1610 Galileo is the first person to apply the telescope to the study of the skies and makes a series of astronomical discoveries.
1628 William Harvey publishes on the circulation of blood, *De Motu Cordis*.
1665 The Great Plague of London kills 17,400 people; fire ended the outbreak.
1677 Cinchona bark (from which quinine is obtained) is listed in London Pharmacopoeia as a fever treatment.
1683 Anton van Leeuwenhoek, with a microscope, identifies and sketches bacteria.

Eighteenth Century—The Age of Enlightenment in Europe (Reason and Individualism)

- 1714 Gabriel Fahrenheit constructs the mercury thermometer.
1717 Giovanni Lancisi suggests mosquitoes transmit malaria.

- 1747 James Lind discovers citrus fruits cure scurvy.
- 1753 Linnaeus, Swedish botanist, physician, and taxonomist, published *Species plantarum*, an attempt to classify all known plants; his peers were jealous of his fame.
- 1756 Benjamin Franklin helps found the oldest American hospital in Philadelphia, Pennsylvania.
- 1759 Caspar Wolff shows specialized organs develop out of unspecialized tissue.
- 1766 Albrecht von Haller proves nerve stimulation controls muscular action.
- 1770s **The Industrial Revolution** begins in Europe.
- 1770 William Hunter established a school of anatomy in London.
- 1773 The first mental institution, a holding facility, is established in Virginia.
- 1774 Joseph Priestly discovers oxygen; Franz Mesmer uses medical hypnosis.
- 1776 **The American Revolution** (The Declaration of Independence, July 4). Smallpox kills 130,000 North Americans; the Colonies use variolation (inserting smallpox into the skin, causing an inoculation to produce immunity).
- 1780 Benjamin Franklin invents bifocal lenses.
- 1785 William Withering introduces digitalis (from foxglove) to cure dropsy.
- 1789 **The French Revolution** (storming of the Bastille on July 14).
- 1794-96 Erasmus Darwin writes *Zoonomia, or The Laws of Organic Life*; Philadelphian Dr. Benjamin Rush, the Father of American Psychiatry, performs revolutionary, but cruel, treatments to cure insanity.
- 1796 Edward Jenner's smallpox vaccination is based on evidence that dairy maids exposed to cowpox never caught it.
- 1798 Thomas Malthus's *An Essay on the Principle of Population* is a cornerstone to Darwin's views on the theory of natural selection.
- 1800 Marie-François Xavier Bichat's *A Treatise on Membranes* provides an understanding of tissues as basic building blocks and prime pathological sites; Humphry Davy announces the anesthetic

properties of nitrous oxide, changing surgical procedures forever.

Nineteenth Century—The Age of Modern Medicine

- 1811 Massachusetts General Hospital is founded in Boston.
- 1815 Waterloo (Napoleonic Wars).
- 1816 René Laennec invents the stethoscope, beginning the age of modern medicine.
- 1818 Mary Shelley publishes *Frankenstein or, The Modern Prometheus*.
- 1820s Homeopathy gains popularity in Canada and the United States when in the late eighteenth century German physician and chemist Samuel Hanemann developed the system from experiments on natural sources (plants, minerals, metals, etc.).
- 1832 Hodgkin describes cancer of the lymph nodes.
- 1843 Chloroform is discovered and used as a painkiller.
- 1843 Dr. Oliver Wendell Holmes writes *The Contagiousness of Puerperal Fever*.
- 1844 Horace Wells uses nitrous oxide to pull his own tooth painlessly; Hawthorne publishes “Rappaccini’s Daughter.”
- 1846 Boston dentist William T.G. Morton uses ether during surgery, ending indescribable pain and overwhelming dread associated with surgery; Eduard Seguin describes Down’s syndrome.
- 1847 Ignaz Philip Semmelweis, the Father of Infection Control, links unwashed hands to puerperal fever in a Vienna lying-in hospital.
- 1860 Florence Nightingale establishes St. Thomas Hospital nurses’ training program.
- 1858 Rudolf Virchow in *Cellularpathologie* demonstrates every cell is the product of another cell, concluding that diseases result from disturbances in cellular structures.
- 1859 Publication of Charles Darwin’s *On the Origin of the Species by Means of Natural Selection*.
- 1863 T.H. Huxley, Aldous Huxley’s grandfather and “Darwin’s Bulldog,” publishes *Evidence as to Man’s Place in Nature*, extending Darwin’s *Origin of the Species* to human evolution.
- 1867 Joseph Lister introduces antiseptic surgery.

- 1869 Friedrich Miesher discovers nucleic acid.
- 1874 Louis Pasteur boils instruments in water to sterilize them.
- 1876 Robert Koch identifies anthrax bacillus.
- 1881 Louis Pasteur creates a vaccine for anthrax bacillus.
- 1895 Wilhelm Roentgen discovers X-rays; H.G. Wells, the Father of Modern Science Fiction, publishes *The Time Machine*, a dystopia with a divided humanity.
- 1896 Antoine Becquerel discovers radiation.
- 1897 Ronald Ross locates the malaria parasite in the Anopheles mosquito.
- 1900 Sigmund Freud publishes *The Interpretation of Dreams*.

Twentieth Century—The Age of Global War

- 1904 Ivan Pavlov wins the Nobel Prize in physiology for research on digestion (the Pavlovian stimulus-response).
- 1905 German bacteriologist Robert Koch wins the Nobel Prize for tuberculosis research, presenting an airtight case that a single bacterium caused the condition.
- 1906 First corneal transplant by Austrian ophthalmologist Dr. Edward Zim.
- 1909 Oslo study begins on autopsied white males to report natural history of untreated syphilis.
- 1912 The Titanic sinks on its maiden voyage.
- 1914 **World War I** (precipitated by the assassination of Archduke Franz Ferdinand).
- 1917 **The Russian Revolution** (Czar Nicholas II, last of the Romanov dynasty, abdicates).
- 1918 Spanish influenza kills at least 30 million people; first blood transfusion.
- 1920s Jean Piaget begins work on describing the stages of cognitive development; Earl Dickson invents the Band-Aid.
- 1928 Alexander Fleming discovers penicillin in a mold; Harvey Cushing first uses penicillin and sulfa antibiotics.
- 1830 Cholera epidemics.
- 1932 In *Brave New World* Aldous Huxley predicts a controlled world in

- which art, science, and religion are banned.
- 1933 Horrendous concentration camp medical experiments take place when Nazis seize control of the German government.
- 1935 The Mayo Clinic establishes the first blood bank.
- 1936 Dr. Walter Freeman performs the first lobotomy in the United States.
- 1938 B.F. Skinner publishes *The Behavior of Organisms* (operant conditioning).
- 1939-45 **World War II**
- 1943 Waksman discovers the antibiotic streptomycin.
- 1946 French philosopher Albert Camus publishes *La Peste* (*The Plague*).
- 1947 The birth of bioethics, facilitated by World War II when science and technology were both beneficial and threatening; the Nuremberg Code is signed.
- 1949 Establishment of the U.S. Navy Tissue Bank; the National Institute of Mental Health created, recognizing the need to diagnose and to treat the mentally ill.
- 1952 Jonas Salk develops first polio vaccine; Briggs and King clone tadpoles from cells.
- 1953 James Watson and Francis Crick describe the double-helix structure of DNA; Rosaline Franklin's earlier work inspired them, causing controversy over who deserved the Nobel Prize.
- 1957 Albert Sabin develops a live polio vaccine; Thorazine, "the prescription straitjacket," is put into widespread use, beginning the psychopharmaceutical revolution in mental healthcare.
- 1960 The birth control pill is approved for general use.
- 1962 Murray and Hume perform the first successful cadaveric kidney transplant; Ken Kesey's *One Flew Over the Cuckoo's Nest* takes another look at electroshock therapy.
- 1963 Dr. Thomas Starzl performs the first liver transplant; a vaccine for measles is introduced; Martin Luther King, Jr.'s "I Have a Dream" speech mobilizes supporters of civil rights.
- 1964 Civil Rights Act of 1964 is signed into law by President Johnson.
- 1966 *Star Trek* TV series, created by Gene Roddenberry, debuts (science fiction).
- 1967 South Africa's Dr. Christian Bernard performs the first heart

- transplant; the recipient has normal heart function for 19 months.
- late 1960s Birth of the discipline of bioethics (See Dr. Albert R. Jonsen's *The Birth of Bioethics*. N.Y.: Oxford University Press, 1998).
- 1968 Brain death criteria established; The Uniform Anatomical Gift Act allows the gift of organs.
- 1969 Lunar module Eagle lands on the moon, July 20; astronauts Neil Armstrong and Buzz Aldrin walk on the lunar surface, fulfilling President John F. Kennedy's 1961 commitment.
- 1970 The American Lung Association begins its "Kick the Habit" antismoking campaign; President Nixon signs legislation banning cigarette advertising on radio and television; the antibiotic vancomycin, regarded as the so-called silver bullet against *Staphylococcus aureus* is introduced; the FDA approves lithium for manic depressives; an anthrax vaccine is first used.
- 1972 The Uniform Anatomical Gift Act's Uniform Organ Donor Card is a legal document in all 50 states making it possible for anyone 18 and older to donate organs upon death; front-page national news blows the whistle on the U.S. government-sponsored Tuskegee Syphilis Study.
- 1974 Phelps, Hoffman, and Pogossian invent the first PET scanner.
- 1975 The birth of the field of literature and medicine (See *Healing Arts in Dialogue: Medicine and Literature*. Ed. Joanne Trautmann. Carbondale: Southern Illinois University Press, 1981).
- 1976 President Ford orders mass vaccination against swine flu; an earthquake in Tangshan, China, kills 255,000 people.
- 1977 Robin Cook's *Coma* predicts a world in which organ harvesting has run amok.
- 1978 Louise Brown, the first test-tube baby, is born (Edwards and Steptoe developed the technique).
- 1979 The World Health Organization certifies smallpox as eradicated, a great accomplishment in a world devastated by the disease for 3,000 years.
- 1981 The Commission for Study of Ethical Problems in Medicine and Biomedical Research expands the criteria establishing brain death.

- 1982 Barney Clark receives the first permanent artificial heart at the University of Utah.
- 1983 FDA-approved cyclosporine becomes the most successful anti-rejection medication.
- 1984 Baby Fae receives a baboon heart at Loma Linda University Medical Center and lives 21 days; the National Organ Transplant Act establishes a nationwide computer registry, the United Network for Organ Sharing, that authorizes financial support for organ procurement organizations and outlaws the purchase or sale of organs.
- 1985 Rock Hudson, popular Hollywood leading man, dies of AIDS at the age of 59, forcing a reevaluation of stereotypes and making AIDS a household word.
- 1987 Prozac is introduced as a treatment for depression.
- 1990 Dr. Joseph Murray, who performed the first kidney transplant, is awarded the Nobel Prize for medicine; Dr. E. Donnall Thomas, who pioneered bone marrow transplants in 1956 as a cure for leukemia, is awarded the Nobel Prize for medicine; David Feldshuh's *Miss Evers' Boys* dramatizes the Tuskegee Syphilis Study; John Updike writes the last in his series, *Rabbit at Rest*.
- 1991 A cyclone strikes Bangladesh killing 138,000 people.
- 1992 Alice Walker's *Possessing the Secret of Joy* exposes a horrendous tribal ritual.
- 1996 Dolly the sheep is cloned using somatic cell nuclear transfer; subsequently, many states make human cloning illegal; in June President Clinton, with National Bioethics Advisory Commission recommendations, signs a five-year moratorium on federal funds for human cloning research.
- 1998 The first successful hand transplant led by Australian Dr. Earl Owen and Frenchman Dr. Jean-Michel Dubernard in a 13-hour long operation in Lyon, France.
- 1999 The National Institutes of Health establishes the Human Genome Project; Margaret Edson writes *Wit*.
- 2000 Celera Genomics announces it has mapped 99 percent of the genome; the publicly-financed Human Genome Project announces it has mapped 97 percent of the genome, of which

85 percent has been placed in order; each method differs, but biomedical discoveries soon follow.

Twenty-First Century—The Age of Cloning

- 2001 **Neo-Enlightenment and Biotechnical Revolution—** worldwide stem cell research and cloning; September 11—terrorists hijack four commercial jet airliners; a month later a dozen people are infected through the mail with anthrax and several die.
- 2002 The President's Council on Bioethics cannot reach a consensus on the ethics of human stem cell use; scientists grow tissue from cloned cells and transplant them into other animals; the FDA approves a 20-minute HIV test.
- 2003 The U.S. House of Representatives votes to criminalize any effort to create cloned human cells, even for medical research; researchers create a genetic blueprint for the SARS (severe acute respiratory syndrome) virus, which causes a mysterious flu-like illness that sometimes leads to fatal lung congestion; scientists complete the map of the human genetic code; on March 19, President Bush, fearing continuing homeland terrorism, takes proactive action and sends United States troops into Iraq.
- 2004 NASA rover touches down on Mars and signals Earth; South Korean scientists falsely report they have cloned a human embryo for therapeutic research; Cohen and Boyer share the Albany Medical Center Prize in Medicine and Biomedical Research for developing recombinant DNA technology (gene cloning) and for basic research on genetic engineering to develop drugs such as human insulin to treat diabetes, growth hormones for underdeveloped children, and interferon for cancer patients; Ronald Reagan, 40th President of the United States, dies on June 5 from complications of Alzheimer's disease, bringing attention to stem cell research.
- 2005 The first successful partial face transplant led by Dr. Bernard Devauchelle and Dr. Jean-Michel Dubernard in Amiens, France.
- 2006 The first vaccine is developed to target cancer; the first HPV

- vaccine is approved; the second rotavirus vaccine is approved (the first was withdrawn).
- 2008 Laurent Lantieri performs the first full face transplant in Spain.
- 2011 The White House hails the ruling by a divided appeals court to permit federal funding for embryonic stem cell research. At issue is whether President Barack Obama's policy violates a 1996 congressional ban.
- 2013 The first baby is cured of HIV in the U.S.; the first kidney is grown *in vitro* in the U.S.; Congress passes the Violence Against Women Reauthorization act of 2013; a 10-year old Philadelphia girl gets a double-lung transplant from an adult donor, challenging transplant policy; in June, Edward Snowden, a former employee of the U.S. Central Intelligence Agency, reported that it had been spying on foreign countries, becoming a whistleblower; the Supreme Court rules that genes cannot be patented because they are naturally occurring DNA, the product of nature.

Chapter One

Technology's Creature: An Analysis of Mary Shelley's *Frankenstein* and Nathaniel Hawthorne's "Rappaccini's Daughter"

Introduction

Mary Shelley wrote her famous monster story as a reaction against medical treatments that did more harm than good. She also tapped into the fear that rapidly advancing nineteenth-century technologies were turning her agrarian society into an urban technocracy. In fact, to bring her monster to life Shelley used the technologies of her time such as Luigi Galvani's discovery of the electrostatic spark. To imbue her monster with the need to survive, she also incorporated the revolutionary social thoughts of Erasmus Darwin.

Shelley's Victor Frankenstein, a modern Prometheus, sutured dead parts into life but his original beneficence turned into scientific hubris. Instead of helping mankind, he opened a Pandora's box filled with ethical and spiritual concerns that society now weighs against the advancement of new scientific discoveries. Another key issue developed in *Frankenstein* is how "the fiend's" horrific appearance and lack of nurturing led to human prejudice against him, causing the creature to turn on his creator. The idea that the technology we create may in the end destroy us is termed *Frankenscience*, which today relates to fears of bioterrorism, xenotransplantation, and cloning.

Hawthorne's "Rappaccini's Daughter," like Shelley's *Frankenstein*, comes from the Romantic Gothic tradition of literature. Both stories evoke a time when science seemed to promise perfection but in which people grew wary when things went terribly wrong. In particular, "Rappaccini's Daughter" characterizes the polarized schools of thought of the traditionalists and the empirics. Scientific rivalry drives the plot. The empiric Dr. Rappaccini has thrust his own innocent daughter into a life of isolation as an experiment, and

at issue is understanding the type of detached intellect that allows a father to imbue his daughter with poisons. Rappaccini rationalizes that his daughter will become invincible, which is reason enough. But his archrival Baglioni jealously obstructs Rappaccini, who demonstrates that even a father's love can be contaminated by scientific avarice; his fatal flaw is exalting the mind at the expense of the heart, also known as head versus heart. Of interest is the importance of striking a balance between human needs and scientific progress. The story implicitly plays out the theme in modern medicine of the value of sacrificing the one for the many.

Steady advances in technology since the nineteenth century make the application of Mary Shelley's *Frankenstein* and Nathaniel Hawthorne's "Rappaccini's Daughter" pertinent to the changing nature of bioethical and medical issues. Both stories encapsulate the Romantic vision of distrusting science and are based on the Faustian theme that man's unchecked search for knowledge and for god-like perfection threaten humanity. Frankenstein's fiend and Rappaccini's daughter are technology's creatures, and their stories continue to fuel scientific debate about what is acceptable technology and who decides.

MARY SHELLEY'S *FRANKENSTEIN OR,
THE MODERN PROMETHEUS* (1818)

Did I request thee, Maker, from my clay
To mould me man? Did I solicit thee
From darkness to promote me?
—John Milton's *Paradise Lost*
Frankenstein's title page epigraph

Historical Context

In 1816 during the Romantic English Literature era, the 19-year-old Mary Godwin (1797-1851) wrote *Frankenstein or, The Modern Prometheus*. It is a famous Gothic novel with graveyards and corpses, but the specters of natural and scientific power replace the traditional ghosts. As a precursor of the science fiction novel, *Frankenstein's* monster symbolizes modern technology. It is both a cautionary and prophetic tale that has led to a whole horror genre.

Mary Godwin Shelley was the only child of famous literary parents: Mary Wollstonecraft, who wrote the 1792 feminist manifesto *A Vindication of the Rights of Women*, probably died of childbed fever; and William Godwin who was a novelist and philosopher. Because her mother died in childbirth, Mary expressed her deep-seated fears about the inadequacies of nineteenth-century medicine in *Frankenstein*.

When she was just 16, she ran off with Percy Bysshe Shelley, a married man with children. They became social outcasts. Their first born child died after twelve days; nine months later she gave birth to William. When William was three, he became deathly ill after a doctor gave him excessive purgatives for worms. He later died from malaria. Births and sudden deaths were commonplace, and nineteenth-century medicine provided few remedies. By today's standards, medical doctors did more harm than good using crude methods (bleeding, blistering, purging), and it is not surprising that Mary's growing awareness of nineteenth-century medicine's inadequacies are reflected in her novel's cautionary theme.

It was also a period of dramatic change partly caused by the many shifting polarities of revolution. The failure of the French Revolution (1789) revealed a crisis in humanism, and in the early nineteenth-century England was in turmoil as the Napoleonic Wars consumed its economy, leading to civil unrest. In *Frankenstein* Shelley, in fact, describes people escaping dire situations by fleeing their homeland, which highlights the new times brought on by the Enlightenment, an eighteenth-century philosophical movement. A few Enlightenment, or Age of Reason, ideas that influenced Shelley's thinking as she wrote *Frankenstein* were: women should be educated with men; parents should bond with their children; and people should reject the Puritanical belief that misery resulted from original sin. Frankenstein's monster, in particular, embodies the Enlightenment view that his horrendous behavior is the product of his social environment rather than his innate capacity for evil.

In Shelley's novel the monster is "born" without much fanfare, unlike the riveting scene in the movies. More significantly, though, Mary Shelley thoroughly explains how Victor Frankenstein (the father-figure) abandons his monster (the child) to a life without any friends and relations. The nameless monster reflects on this:

No father had watched my infant days, no mother had blessed me with smiles and caresses; or if they had, all my past life was now a blot, a blind vacancy in which I distinguished nothing. From my earliest remembrances I had been as I then was in height and proportion. I had never yet seen a being resembling me or who claimed any intercourse with me. What was I? (*Frankenstein* 115-6)

The intelligent and sensitive monster, with no links to the past, feels he has no hope for the future. Because society failed to nurture him, his being scorned and isolated led to his misdeeds. Even Frankenstein's final words to Captain Walton underscore the view that his experiment might not have failed if the creature had appeared more loveable.

Another factor incorporated into *Frankenstein's* modern theme was the turmoil of the Industrial Revolution (1780-1830). People feared that in the long run new technology that changed their society from agrarian to urban would harm its creators and exploit nature. Mary Shelley's basic plot reflects these new fears about technology, which were reported in the popular press as the Luddite movement. Her novel also embodies elements of new scientific discoveries such as Galvanism: the Italian physician Luigi Galvani in the 1790s jolted frog muscles with an electrostatic spark, demonstrating electrical twitching nerve impulses. Shelley also ingeniously combined the new sciences of chemistry and electricity with the older Renaissance tradition of the alchemists' search for the elixir of life to conjure up the possibility of reanimating dead bodies. She imaginatively envisioned how, shocked with electrical impulses, her corpse might spring to life. She also gave him the drive to survive, influenced by physician-naturalist Erasmus Darwin's *Zoonomia, or, The Laws of Organic Life* (1794). Darwin's was one of the first formal theories on evolution.

Besides scientific discoveries, *Frankenstein* incorporates medical advances suggesting a human mastery over the physical universe and begs the question, Are we trying to play God? A vast number of discoveries—from vaccinations to a new understanding of tissues, disease, and death brought about by the use of the microscope—pointed toward a powerful but frightening new medical age that included the reanimation of dead tissue that Galvanism suggested. Would the end of disease and death, formerly in God's province, be far behind?

At the time she wrote *Frankenstein or, The Modern Prometheus*, Mary Shelley was reading and being influenced by two other works in particular. She got her

theme and subtitle, “The Modern Prometheus,” from Ovid’s *Metamorphoses* (c. AD 8), a series of tales in Latin verse. She also used John Milton’s epic poem *Paradise Lost* (1667), which is a retelling of the story of Adam and Eve, to shape her theme. *Frankenstein*’s opening epigraph comes from *Paradise Lost* and sets the tone of the entire story: “Did I request thee, Maker, from my clay to mould me man? Did I solicit thee, from darkness to promote me?” That is, Victor Frankenstein in his scientific hubris defies the natural order and plays God, first creating and then abandoning his Adam, who is not molded from clay but sutured together from graveyard corpses and slaughterhouse parts and then sparked to life. Unlike Milton’s Adam, Frankenstein’s monster is a horrific yellow-eyed being spurned by society. Although the desolate monster becomes increasingly hostile, he shows his humanity in desiring a mate (Eve) like himself. In the end, Victor Frankenstein feels internal conflict from his misapplied knowledge (or technology), and he and his loved ones—as well as his creature—suffer for it.

Synopsis of the Novel

Much of the plot of *Frankenstein* unfolds through letters a young Artic explorer writes to his sister in England. Captain Walton, who is searching for a north-west passage to the New World, tells her about coming upon the mortally ill Victor Frankenstein adrift on an iceberg. The nearly frozen man is searching for the monster he created and talks about his obsession to learn the secret of life. He tells Captain Walton about his family in Geneva, Switzerland: his parents; Elizabeth Lavenza, an orphan adopted when she was five, whom Victor calls his cousin; and two younger brothers, Ernest and William. His closest childhood friend is Henry Clerval, the well-read, gentle son of a merchant.

In his youth Victor marveled at the natural world and desired to divine its secrets from studying natural philosophy (“the genius that regulated his fate”). He read the works of Cornelius Agrippa, Paracelsus, and Albertus Magnus. Seeing lightning strike an old oak, its stream of fire interested him in the laws of electricity. In learning about the natural sciences, Victor dreamt of eradicating human disease.

At 17 Victor left home to study chemistry and anatomy at the University of Ingoldstadt. From Professor Waldman he learned about the new discoveries of blood circulation and of the nature of air. Clearly, Victor thought, modern science has power over the natural world. Then, suddenly, Elizabeth

was struck with scarlet fever. Victor's mother nursed her through it but soon would die herself. On her deathbed, she joined the hands of Elizabeth and Victor who became betrothed.

At the university Victor's interests turned with renewed vigor toward examining the processes of life and death. Might he, in time, bring life to lifeless matter? He spent nights in burial vaults and charnel houses, filling his laboratory with dissected human and animal parts, all of which disgusted him. But he knew that from them he would create a perfect man and that this new species would "bless" him for it. With a singleness of purpose, Frankenstein devoted himself to his task for over two years, absenting himself from family and friends until his work was complete.

On a dreary November night the exhausted Victor Frankenstein sparked life into his sutured corpse, and the superiorly designed eight-foot creature opened its dull yellow eyes, breathed hard, and flailed its limbs. While proportional, the features Frankenstein had selected for his creation were not beautiful: yellow, taut skin scarcely covered muscles and arteries; lustrous black, flowing hair and pearly white teeth were in horrid contrast to its watery eyes set into dun-white sockets; and straight black lips traversed a shriveled complexion. Frankenstein's beautiful dream vanished at the sight of his horrible creation, and he ran to his bedchamber where his fretful sleep filled with prescient dreams of Elizabeth morphing into his mother's wormy corpse. All at once the monster startled him from his sleep, and Victor escaped to the lower courtyard. He remained there for the night, listening for the "demoniacal corpse."

Suddenly Clerval, who arrived to attend the university, surprised Victor with a visit. They returned to the laboratory only to discover the monster had fled. In maniacal relief, Victor fell down into a fit, exhausted. Clerval nursed him for several months, disbelieving his ranting as the product of a wild imagination. When Victor stabilized, Clerval gave him a letter from Elizabeth with news and entreating him to write. Feeling some normalcy again, Victor abandoned his former work, holding his terrible secret inside.

At the university he introduced Clerval to his professors, but hearing their praise of his work Victor writhed at their words. He turned away from scientific endeavors toward Clerval's studies of language and literature. Then one day Victor received a letter from his father with the cruel news that his brother William had been murdered. Victor went home to Geneva to visit

the spot William died, and a figure not of human shape passed him. It was the creature. Victor did not tell the authorities and cause immediate pursuit since they would only consider it the ranting of a lunatic. His silence exacted a terrible price.

Elizabeth, William's caretaker, anguished in self-reproach over his death. Few felt relief when the servant girl Justine was accused of the crime on circumstantial evidence—the picture William wore around his neck was found in her pocket. Eyewitnesses, caught up in mob hysteria, testified falsely. When the Roman Catholic Justine confessed to the crime to obtain absolution, Victor knew himself to be “the true murderer” but did not speak up. Thus, William and Justine became the first hapless victims of Frankenstein's “unhallowed arts.” Feelings of remorse and guilt preyed upon Victor's health, and he and his family retreated to their house at Belrive. A sense of impending doom followed them.

While hiking in the Alps one day, Victor saw the monster who entreated him to remember that he was his creation, but now was irrevocably excluded from humanity because his appearance made him a fiend. He described a lonely existence in hiding, except for time spent near a cottage in Germany where the De Lacey family lived. They consisted of an old blind peasant and his daughter, his son, and his son's girlfriend. Compared to the monster's forlorn state, they were blissful, having found asylum from horrendous events in Paris. He observed them clandestinely and gained speech and an understanding of love. Feeling benevolent, he cut firewood for them. Then walking in the forest one day, he found a book, John Milton's *Paradise Lost*, and he slowly learned to read. Born intelligent and sensitive, the monster's emotions were profoundly stirred from reading the book as he compared his situation to Adam's. But God had not made him into a perfect creature; rather, he was hideous, abandoned, and alone. Feeling more like the fallen angel Satan, the creature envied the family's happiness. Finding the courage to meet them, he saw only how frightening he was, and he fled.

On his travels he saved a child's life, but contacts with other fearful humans added to his growing despair and sense of isolation. By the time he ran into Frankenstein in the Alps, he was despondent and depressed. He demanded Frankenstein make another hideous creature like himself—but of another sex. “We shall be monsters, cut off from all the world,” but closer therefore, he argued. Happiness may not always be theirs, but having each other would

keep them misery-free and harmless to others. “Let me see that I excite the sympathy of some existing thing; do not deny me my request,” he implored his creator. Because normal society would not embrace him, his mate must also be deformed and horrible. The creature Frankenstein abandoned as ugly and unnatural now sought his creator, yearning for love and for acceptance.

At first Frankenstein considered the implications of adding to this new species, but then he consented. He traveled to Scotland with Clerval, leaving him to withdraw to a lonely Orkney Island to undertake his dreadful task. But then Frankenstein thought of the curse he might bring on future generations by producing “a race of devils” and destroyed the work he had begun. With no mate forthcoming, the monster, who had followed Frankenstein to Scotland, vowed to kill all those Frankenstein loved.

The monster killed Clerval in Ireland—Frankenstein was accused but acquitted of the crime. Back in Switzerland, Elizabeth was murdered on her bridal bed. Frankenstein swore he would destroy the monster and pursued him to the Arctic where Captain Walton encountered him. Broken from months of vengeful pursuit, Frankenstein entreated the Captain, who like himself was on a quest, to avoid scientific ambition. Hallucinating about his dead loved ones, Frankenstein died. As Captain Walton prepared to leave for home, the monster entered the ship’s window. Standing over Frankenstein’s coffin, he described his unspeakable torments while he longed only for happiness. Expressing remorse for his misdeeds, the monster jumped onto a nearby iceberg and was lost in the darkness. The tragic tale of Victor Frankenstein ended.

Literary Analysis

The focus of this analysis is to reveal pertinent bioethical and medical issues in *Frankenstein*, supported by the discussion of science. In this third millennium Mary Shelley’s *Frankenstein* taps into a spectrum of specific issues and is a cautionary tale that asks: What happens when technology runs amok? *Technology* is defined in the *Oxford American Dictionary* as “the scientific study of mechanical arts and applied science.” In applying his technical knowledge, Victor Frankenstein’s first intentions were benevolent: to “banish disease from the human frame and render man invulnerable to any but a violent death” (*Frankenstein* 40). But later, scientific hubris adds to the mix, and now he must create a superhuman species with “happy and excellent natures”—but they will owe their existence to him and will “bless” him (*Frankenstein* 52). He’s the

scientist playing God. His creation, although superhuman in size and speed, is repulsive in appearance, becomes isolated, and is continually rejected by society.

The novel was written 200 years ago. In the tradition of Romantic literature, the theme is often revealed through a series of letters, which is called the epistolary novel technique. Today's sophisticated reader needs to suspend disbelief while certain aspects of the plot unfold. For example, although the monster is "born" fully grown, at birth his emotional and intellectual age is that of an infant. Nonetheless, given an adult brain, he teaches himself to talk by overhearing the De Lacey family. He learns to read when he finds a copy of Milton's *Paradise Lost*. Putting Milton's epic poem in his hands, as such, helps develop Shelley's theme, that her monster is God's creature, an Adam looking for love and acceptance from a mate. Shelley's early nineteenth-century narrative seems awkward at times, and inconsistencies in description pop up. More fundamentally, though, readers must forget certain characterizations, plotlines, and images created by James Whale's classic 1931 film starring Boris Karloff, which spawned generations of pop culture. First, Mary Shelley's Victor Frankenstein is a 17-year-old science student, not the more mature Dr. Henry Frankenstein of the movies. Popular culture also has planted in our heads that Frankenstein is the monster's name, when in fact the monster is a nameless being referred to as "the fiend" or "the creature."

What is of utmost importance in *Frankenstein*, however, is that Mary Shelley gives us the viewpoints of both creator and creature. She aligns the relative humanities of Victor Frankenstein and his "fiend" so that readers can decide for themselves on the humanness of each. Yale Literature Professor Harold Bloom states in the Afterword:

The greatest paradox and most astonishing achievement of Mary Shelley's novel is that the monster is *more human* than his creator. This nameless being, as much a modern Adam as his creator is a modern Prometheus, is more lovable than his creator and more hateful, more to be pitied and more to be feared, and above all able to give the attentive reader that shock of added consciousness in which aesthetic recognition compels a heightened realization of the self (*Frankenstein* 215).

That is, when readers immerse themselves in the story, their connection with, or sense of empathy for, the monster should heighten.

Victor Frankenstein, the detached scientist, keeps a safe emotional distance between himself and the monster. He abandons him immediately with no interest in observing or understanding the monster's feelings and thoughts. It would take empathy for Frankenstein to bond psychologically with his creation and to understand and to nurture him. Near the end of Shelley's Chapter 10, the monster in his need for companionship and understanding confronts his creator, but his rational attempt to connect is thwarted. In frustration he threatens his creator. Right up until the time Frankenstein takes his last breath on Walton's ship, his tragic flaw does not arise from his Promethean ambition to create life, but rather in his mistreatment of, or lack of empathy for, the fiend he "fathered."

Other social issues emerge from *Frankenstein*, including how science and religion are misunderstood and misused; how human prejudice toward repulsive appearance leads to desolation and striking out; and even, in feminist terms, how the male scientist is seen metaphorically as raping natural resources perceived as feminine. Nonetheless, the most relevant bioethical theme centers on the Prometheus syndrome of creating technology without thinking ahead of the consequences. *Frankenscience*, a term coined by the popular press, warns us about the inherent dangers of technology going awry and the potential for chaos in mainstream science.

Frankenscience. The creature warns Victor Frankenstein: "Remember that I have power . . . I can make you so wretched that the light of day will be hateful to you. You are my creator, but I am your master" (*Frankenstein* 160). Have we released a monster—called Frankenscience—that has the power to destroy our civilization? Victor Frankenstein wanted to eradicate disease and death, but then his scientific curiosity turned into an obsession to create life and to become famous. At the end, he even warned his rescuer, Captain Walton, who is on a quest of his own, to learn from him about the dangers of acquired knowledge. While the benefits of technology, such as life-saving vaccines, are clear, is it prudent to be constantly vigilant about the downside of technology? In recent times, examples of Frankenscience include splitting the atom, which led to nuclear bombs, and using computers, which some say may dehumanize our society and have great potential to harm us (Y2K millennium bug, computer viruses, and hacking damage, also known as cyberterrorism). What

follows are more examples of Frankenscience, or the possibility of technology running amok.

Xenotransplantation. From *xenos*, the Greek word for stranger or guest, a xenograft is an organ or tissue transplant from one species to another. With new biomedical technology, patients condemned to early death might live longer with baboon hearts, pig livers, or other animal organs. Oftentimes the health risks of these xenotransplantations are unknown, and animal viruses pass to humans. Mary Shelley's book adds to the debate, warning of the dangers of usurping the natural order. In 1984, for example, the infant known as Baby Fae received a baboon heart transplant. She lived only 20 days with it. After a two-year effort for FDA permission, in 1996 AIDS patient Jeff Getty received baboon bone marrow, intended to boost his immune system. This is called the "facilitator" cell approach. Animal parts successfully transplanted into people may end serious maladies such as diabetes but often the long-term consequences of cross-species transplantation are unknown.

Cloning (creating a genetic duplicate). In 1996 the first mammal, Dolly the sheep, was cloned from a cell of an adult animal by Scottish researchers at Roslin Institute. There was widespread excitement in the scientific community, but also there was considerable speculation about the downside of this technology. Were we aware of the risks? What kind of restraint would we put on this type of scientific power? Because of intense publicity on the issue in all broadcast media, President Bill Clinton issued a moratorium on human cloning pending a National Bioethics Advisory Commission investigation.

While Victor Frankenstein completed his research in secret, scientists today have more governmental oversight of their plans and procedures, especially if federal money is used. As a nation, we also have to decide how much we value individuality and diversity in our population. Other cloning projects followed, with those on humans remaining elusive and controversial. But the genie has left the bottle, making the age of cloning a reality. With the post-modern Frankensteinian ability to create life, public policy and laws must now address the social issues incumbent in reshaping our world.

Bioterrorism. One of these major issues is bioterrorism because terrorists have the ability to use recent advances in technology to disseminate disease, to cause illness, and to inflict mass death. In 1984 the first documented case of bioterrorism occurred in The Dalles, Oregon, a quiet town along the banks of the Columbia River. Followers of the Indian guru Bhagwan Shree Rajneesh

spiked salad bars with salmonella at 10 restaurants and sickened about 750 people. Fear was widespread in the area as many residents thought cult members would try to spread the AIDS virus and to contaminate the water supply. Scared people would not go out alone, becoming prisoners in their own homes. The cult's motivation was to keep voters from the polls so that their candidates would win county elections. This incident received little national attention because it was perpetrated by a local fanatical fringe cult. Cult members fled to Europe; their leader died in India in 1990. The story is told in Portland State University Professor Gary Perlstein's *Perspectives on Terrorism* (1991).

Fears on a national and even global scale, however, include the World Health Organization's 2001 warning that it is technically possible to disseminate lethal quantities of smallpox or anthrax to kill millions of people. The Centers for Disease Control in Atlanta (CDC) advises local governments on how to combat germ warfare, which at times has led to grounding crop-dusting planes. A small number of people in a large city could be infected with smallpox, spreading it to many more before it is detected. U.N. treaties ban biological and chemical weapons stockpiled during the Cold War.

On September 11, 2001, terrorists proved their technical capability by hijacking four commercial jet airliners: two hit the twin towers of the World Trade Center in New York City, killing thousands; one hit the Pentagon near Washington D.C. killing 196 people; and the fourth plowed into a field near Pittsburg, killing all aboard. The United States had not experienced a homeland attack since the Japanese bombed Pearl Harbor on December 7, 1941. With the high-jacking terrorists identified as religious fundamentalists from several countries, American men, women, and children were talking about the meaning of good and evil and how to rebuild a moral world shattered by horrific events.

A month later a dozen people in five areas of the country were infected with anthrax through the mail; several people died. Many others became ill but were successfully treated with antibiotics. The CDC routinely issues warnings for food poisoning and deadly viruses like Ebola.

Frankenscience takes on a pejorative meaning, but examples of favorable outcomes include The Visible Human Project sponsored by the National Library of Medicine. It contains photographed and digitized slides of a human dissection that teach anatomy and surgical techniques. In the case of the Human Genome Project, which promises breakthroughs in genetic research leading to

medical cures, the National Institutes of Health has opened its databases. The potent knowledge embodied in the international decoding of human DNA could be abused if kept secret. In Shelley's *Frankenstein* Victor Frankenstein also keeps silent about his grisly project and does not warn society about his monster's escape (even though he's aware of his brother's murder), making him complicit, or a participant in, the monster's crime. *Frankenstein* is a pre-scient warning of the stealth of science in developing gene therapy, cloning, and cyborgs.

Alone in his laboratory Victor Frankenstein created a monster who was unleashed onto humanity. Today's society, too, weighs the benefits of medical discoveries against ethical and spiritual concerns. But how do we impose a limit on the human quest for knowledge and how that knowledge is applied?

In 1818 Mary Shelley could not have imagined how strongly *Frankenstein* would relate to early twenty-first century headlines declaring scientific breakthroughs. For two centuries her monster story has permeated our culture, spawning science fiction and horror films. Its themes have given shape to plays, films, and television series—it was even a Marvel comic book in the 1970s. Given all of *Frankenstein's* influence on pop culture, in the end this classic tale continues to throw a cautionary light upon the rampant advances in technology and how humans use them to penetrate the secrets of nature. In chapter 2, “A Brave New World,” ideas gleaned from *Frankenstein* will be extended into discussions of eugenics, transplantation, and cloning.

Topics for Oral and Written Discussion

- How did the Enlightenment's views on individual happiness, the Industrial Revolution, and barbaric medical procedures influence Shelley's thinking as she was writing *Frankenstein*?
- What scientific discoveries and social views did Shelley incorporate into her novel?
- How does Shelley's use of Milton's *Paradise Lost* relate to *Frankenstein's* theme?
- Is Victor Frankenstein's obsession to create life a sin against God or nature?
- Thinking about the complex relationship between Frankenstein and his creature, how do we decide what is human and nonhuman?
- How can society balance the benefits of new medical discoveries/

technologies against the ethical or spiritual questions their use may pose?

- Define Frankenscience and give several examples.
- What are Victor's and Justine's respective misunderstandings and misuses of science and religion, and how do they contribute to their deaths?
- Society rejects Frankenstein's intelligent, kind, and articulate creature because of his scary appearance. If the aliens described in science fiction exist, what lessons learned from Shelley might influence our reaction to them?
- Relate Frankenstein's ability to create life to the ethics of human cloning.

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NATHANIEL HAWTHORNE'S "RAPPACCINI'S DAUGHTER" (1844)

Rappaccini! Rappaccini!

And *this* is the upshot of your experiment?

- Signor Pietro Baglioni in "Rappaccini's Daughter"

Historical Context

As Shelley did in *Frankenstein*, Hawthorne drew from his background to create a supernatural tale in "Rappaccini's Daughter." Born in 1804 in Salem, Massachusetts, Hawthorne descended from Puritan immigrants. When he was just four, his sea captain father died of yellow fever, leaving behind his wife and three children. All his aunts and uncles helped raise him, and he attended Bowdin College where he befriended the poet Longfellow. He returned home to write but was not immediately successful, so he worked in the Custom House. Then he lived briefly at Brook Farm, an experimental utopian community based on transcendental philosophy. Finding it too difficult to write, he left in a huff. As a nonconformist, Hawthorne's commune experience might explain why his garden setting for "Rappaccini's Daughter" reflected more of Dante's inferno than romantic idealism.

Hawthorne married Sophia Peabody. They moved to Concord, Massachusetts, where they raised several children. Sophia's upbringing directly influenced Hawthorne's themes. Her father, Dr. Nathaniel Peabody, grew the purple wildflower, *Solanum dulcamara*, in his Salem garden, using it for tooth pain relief. From her early childhood Sophia kept records on the garden. Her father, despite his homeopathic tendencies, made her the object of some experiments, as Dr. Rappaccini did with Beatrice. He dosed her with paregoric (opium), laudanum, and mercury, and Hawthorne, to his horror, later found it

necessary to cure his wife of these addictions.

Another incident central to Hawthorne's theme was the bitter medical rivalry between two famous regional doctors, Dr. Oliver Wendell Holmes and Dr. Robert Wesselhoeft. In 1842 at the prestigious Boston Society for the Diffusion of Useful Knowledge, Holmes accused Wesselhoeft of quackery and ran him out of town, denouncing his delusional use of homeopathy (a water cure) and calling him an empiric with fantastic theories. In addition, Wesselhoeft's brother, William, used experimental hypnosis on the young Sophia Peabody, which Hawthorne viewed as a violation. Hawthorne reconstructs the bitter Holmes-Wesselhoeft rivalry into the heart of "Rappaccini's Daughter."

Other well-known Hawthorne works, *The Scarlet Letter*, *The House of the Seven Gables*, and *The Blithedale Romance*, visit the theme of how good fends off evil. They reflect America's Age of Romanticism, a literary movement drawn from European literature to invent the Gothic terror genre, a gloomy, dense, and dark style that aroused in readers a sense of the supernatural. Nathaniel Hawthorne and his contemporaries Edgar Allan Poe and Herman Melville used Puritan legends to create mysterious and evil characters.

Two other Romantic authors who influenced Hawthorne were Henry David Thoreau (*Walden*), who used the scientific method to observe and record natural phenomena, and Ralph Waldo Emerson (*Nature*), who believed God created nature and held dominion over everything, including science. Thoreau and Emerson rejected harsh Puritan beliefs to found Transcendentalism, which like nineteenth-century Enlightenment caused a cultural awakening. In their flourishing utopian communal societies they cast off the idea that Satan caused illness and disease to punish man. Instead, they held the belief that man was innately good and that by using his intuition, alone, he could arrive at a deeper truth than experience offered.

Transcendental views helped to spread democracy and social reform, such as the abolition of slavery and the fight for women's rights. When compulsory school attendance was enacted into law, a more literate population spread progressive ideas that set the cornerstone for medical reform. As in Europe, the United States was changing into an industrial and urban society. In fact, in 1829 the term *technology* was coined to describe new inventions: the cotton gin, the sewing machine, and the telegraph.

It is important to note that "Rappaccini's Daughter" is set in Renaissance Padua, Italy, where at Padua University, a thriving medical center, a sixteenth-

century scientific controversy brewed. Up until that time old medical traditions were practiced based on the Roman-era views of Galen of Pergamum (130-201 A.D.); he is called the Father of Sports Medicine. Galen was primarily a gladiatorial surgeon who synthesized all that was then known of medical practice. His framework for explaining the body and its diseases included numerous anatomical and physiological discoveries about heart-muscle action, kidney secretion, respiration, and nervous-system function. Primarily, he believed in the balance of four body humors: blood, phlegm, and yellow and black bile. Debates ensued when Paracelsus (1493-1541), a Swiss alchemist and physician considered the Father of Pharmaceuticals, broke with the long-held traditions of Galen to revolutionize medical practice.

Paracelsus observed plants and minerals like sulphur, iron, and copper sulfate, and he conducted experiments with their active ingredients. He taught that the activities of the human body are chemical, with health depending on the proper chemical composition of the organs and fluids, what are now called pharmaceuticals. Paracelsus encouraged research into the nature of poisonous substances, proving that if they were given in small doses they could often cure the disease they caused. It was the principle of “like can cure like,” relating to present-day inoculations. “Rappaccini’s Daughter” introduces the Paracelsian idea of an antidote based on the principle that what makes a person ill may also be the cure. Unfortunately, in the plot’s denouement, or outcome, when Rappaccini’s daughter grabs the antidote from Giovanni’s hand and swallows it, she dies in a Romeo and Juliet twist of fate. However, rather than two families being at odds over their star-crossed lovers, Hawthorne reenacts the bitter rivalry between the Galenic whole-body approach and Paracelsian pharmaceutical advances, or the traditionalists and the empirics.

The idea of “like can cure like” is a forerunner to today’s homeopathy, which stresses looking at the symptoms of each individual patient for clues to a cure rather than at classical definitions of disease. In homeopathic medicine, practitioners identify cellular abnormalities that hinder the body’s ability to remove toxins, and they introduce pharmaceuticals to augment the body’s natural healing process.

Another term used to identify a Paracelsian approach is holistic. That is, Paracelsus believed that a physician should be an alchemist, astrologer, and theologian in order to tend the body, soul, and spirit. He also gave us the best definition of syphilis up to that time, and, although now known to be toxic,

invented a mercury treatment for its cure. Hawthorne, who understood the Galen-Paracelsus debate, characterized Dr. Rappaccini as a Paracelsian who observes nature and experiments. In fact, Rappaccini's archenemy, Baglioni, tells Giovanni that Rappaccini is a "vile empiric" who does not respect "the good old rules of the medical profession." On the other hand, Baglioni, as Rappaccini's counterpart, is more of a Galenist, a traditional academic.

Carol Marie Bensick offers another interesting interpretation of "Rappaccini's Daughter" in *La Nouvelle Beatrice: Renaissance and Romance in "Rappaccini's Daughter."* Reconstructing the historical Padua setting to be the site of syphilis research and drawing on the Galen-Paracelsian controversy, she diagnoses the main characters with syphilis. She says descriptions in the story of fever and strange bursts of energy support her supposition. In her view, Beatrice inherited syphilis at birth through her father (thereby developing an immunity to it), and Giovanni is simply an unknowing carrier. Bensick adds that Baglioni's vial carrying the antidote was made by Benvenuto Cellini, a known syphilitic, and she points out that in the sixteenth-century the common term for syphilis was poison.

Medical topics arising from Hawthorne's story include cures for syphilis and theories of inoculation, the premise being that today's lethal toxin may contain tomorrow's lifesaving drug. Primarily, however, Hawthorne pits the conservatives who endorse the tried and true ways against the innovators who endeavor to advance new and sometimes more radical treatments. While scientific discoveries range from the basic to the lofty—looking into prehistoric dinosaurs, studying DNA and stem cells, and exploring the stars—the nature of scientific rivalry is always two-fold. On a multinational level scientists compete to advance scientific discoveries, and on a personal level they may want to expose a rival. It can all take place on a battlefield, as exemplified in "Dr. Rappaccini's Daughter."

Synopsis of the Short Story

"Rappaccini's Daughter" opens with Hawthorne mocking himself as its allegory-loving author, M. de l'Aubepine (French for Hawthorne). Then he gets right into the sixteenth-century story of Giovanni Guasconti, an impressionable, self-absorbed young man leaving home for the first time to attend medical school at the University of Padua. Giovanni's room overlooks a garden where the eccentric Dr. Rappaccini, a genius but an outcast from the medical

establishment, cultivates plants for medicinal purposes. One day Giovanni is excited to see the doctor's beautiful daughter, Beatrice, enter the garden; at the same time he is puzzled when Rappaccini carefully inspects a purple shrub without touching it, while Beatrice embraces it.

Signor Pietro Baglioni tells Giovanni more about the mysterious Dr. Rappaccini and his daughter, but his view is tainted by years of professional jealousy, saying that Dr. Rappaccini cultivated poisons for their medicinal virtues without hesitating to sacrifice what was dear to him. Secretly, the less brilliant Baglioni fears that Rappaccini is grooming Beatrice to unseat him from his professorship and that he may be taking over his promising young protégée, Giovanni.

Besides having Baglioni's skewed point of view—unreliable and slanderous—we draw conclusions about Beatrice and Rappaccini out of Giovanni's own paranoia and lust. In fact, most of what he and the reader think they know of this daughter-father duo comes from these two sources. In the key garden scene in which Giovanni “sees” proof of Beatrice's poison—a lizard drops dead after a few drops from the purple flower fall upon it—he has just come from Baglioni. Giovanni is drunk, according to his own admission, and almost everything he suspects is undermined by the author.

As Giovanni is finally drawn into Beatrice's garden, the reader is drawn in through his viewpoint, fed again by paranoia and lust. The ever-scheming Baglioni has warned Giovanni that Rappaccini is a “vile empiric” who plans to use him in one of his experiments, and he gives him a silver vial containing a poison antidote. In a test Giovanni plans to hand some flowers to Beatrice, but, inspecting them in his room, they wilt in his hands. In a scene in which he turns on her, Giovanni rushes into the garden to meet Beatrice. He offers the vial to her, declaring they must first drink to purify themselves. In actions showing her to be innocent and of a loving heart—not poisonous—she grabs the vial from his hands and drinks the antidote. What she says rings true: “Was there not more poison from the first, in thy nature than in mine?” She is poisonous only in that she is sexual; he is “poisoned” by her because she sexually excites him. That is what he resents and fears. In the final analysis, is not Giovanni's poison a lovelessness and a lustful nature; is not Beatrice's poison more literally sexual—ultimately related to our humanness and mortality?

Rappaccini then enters the garden and tells Beatrice that Giovanni was to be her bridegroom. While Beatrice felt her father had inflicted a lifetime of

horrible pain on her, he believed he had given her a great gift: she was invincible to any power and could defeat any enemy. Declaring that love would be preferable to fear, she died. The antidote, which Giovanni avoided taking first, was a poison to her. In the last line of the story, our suspicion of Baglioni's professional jealousy and his view of Rappaccini as an evil experimenter are confirmed when, after seeing Beatrice die as a result of his antidote, he diabolically gloats "in a tone of triumph mixed with horror": "Rappaccini! Rappaccini! And *this* is the upshot of your experiment?"

Literary Analysis

Scientific rivalry drives Hawthorne's famous supernatural tale of poison and intrigue. It reconstructs an Italian Renaissance setting at Padua University when two camps were at war: the traditional Galenists and experimental Paracelsians. Paracelsus was an empiric, the Faust of Renaissance medicine, whose new science of medical chemistry transcended tradition. He opposed the orthodox Galen, who until that time was regarded as an indisputable source. Andreas Vesalius, professor of anatomy at Padua University, a famous center for medical training, was another central figure of Renaissance medicine supporting Paracelsian reform. In 1543 his famous anatomical text, *The Fabric of the Human Body*, was published, based on stolen criminal bodies because the church did not allow dissection. For the first time, he proved wrong Galen's observations, which had been based largely on animal observations. Vesalius also helped establish surgery as a separate medical profession.

Paracelsus's and Vesalius's remarkable convergence of ideas with Renaissance humanism was the beginning of the great transformation from archaic medicine to modern technology. Their medical breakthroughs, along with William Harvey's discoveries on blood circulation, contradicted the old ways, which led to suspicions and bitter rivalries. Likewise, in "Rappaccini's Daughter" the traditionalist Baglioni opposes the experimentalist Rappaccini, a Faustian character in search of knowledge or perfection. In a scientific research scenario replayed many times over the years, archrival Baglioni uses his apprentice Giovanni as a pawn against Rappaccini. And, at a time when Victorian views of sexuality caused doctors to examine women with their clothes on, Beatrice's sexuality motivates all three men: Rappaccini must control her, Giovanni must dominate her, and Baglioni fears her.

Great literature is often perceived in many different ways, with "Rap-

paccini's Daughter" included in anthologies of the best nineteenth-century science fiction; great American love stories; famous poison stories; and Garden of Eden stories. It always evokes a strongly polarized and viscerally emotional female-male response in discussions on the nature of Beatrice's and Giovanni's romantic love. In literary analysis, however, Hawthorne's Garden of Eden allegory pits good against evil using literary allusion and devices such as symbolism and ambiguity. In addition, he plays out the romantic themes of nineteenth-century science seeking perfection and, when things go terribly wrong, the scientist's unpardonable sin for not asking for forgiveness. Dr. Rappaccini, who uses his daughter in an experiment, is the hubristic scientist playing God. He shows his tragic flaw by exalting the mind at the expense of the heart, expressed symbolically in the head (intellect) versus the heart (emotion).

A hotly discussed issue today is the need to balance clinical medicine with human rights. When Rappaccini thrusts his innocent daughter into a life of isolation, he rationalizes that she will become invincible and thank him. Through no fault of her own, she turns deadly. But she is ignorant of her poisonous nature because her only companions have been her father and her "sister," a poisonous purple bush that mocks her beauty and is symbolically rooted in evil. In fact, the duality of nature, also seen in the garden's broken fountain, is expressed throughout "Dr. Rappaccini's Daughter" as a major theme. Ultimately, Dr. Rappaccini's unconscionable plan extends into "infecting" Giovanni, an intended bridegroom who is excited by a beautiful young woman and puzzled by her eccentric father.

Hawthorne repeatedly shows Beatrice's and Giovanni's inner feelings, and how they fall in love. Giovanni's is an idealized romantic love—until he realizes he has taken on her poison. In the end Rappaccini's detached intellect allows him to value science over humanity, reprehensibly sacrificing his daughter to add to his "heap of knowledge." Indeed, the theme of sacrificing the one for the many is often played out in modern medicine. Dr. Rappaccini's "fatal love of science" envelops Beatrice and Giovanni into an inescapable situation; only death will liberate them. Rappaccini's fate is ambiguous. Baglioni's conservative view is that Rappaccini's flaw is not having a "sounder view of the healing art." And a universal science fiction theme including a "vile empiric" scientist whose scientific method is exalted over human life is the main focus of this analysis.

For all of the reasons highlighted in the themes of scientific hubris and of

the stealth of research, today's human research subject guidelines are strictly monitored. Furthermore, the story's major theme in the context of scientific rivalry is the importance of striking a balance between human needs and scientific progress, a concern many medical professionals and bioethicists face. In the end, "Rappaccini's Daughter," like Shelley's *Frankenstein*, reminds us of what happens when unsupervised scientific experiments go terribly wrong, especially when scientific rivalry intervenes. In medical research, we all have to decide what is acceptable.

Topics for Oral and Written Discussion

- What Italian Renaissance advances improved the scientific method in studying medicine?
- Relate the 16th-century Galen-Paracelsus debate to Baglioni's and Rappaccini's rivalry. Who does Hawthorne cast as the villain?
- Define and relate the homeopathic principle, "like can cure like," to the story.
- Discuss the theory of inoculations.
- Define and apply to the story: "vile empiric," detached intellect; and head versus heart.
- How did Peracelsus' and Vesalius' works transform medicine from archaic to modern?
- Was Rappaccini's experiment a rational and/or unconscionable action?
- Relate the story to the Romantic view of scientific hubris and being wary of seeking perfection. Then attribute the characteristics of good and evil to the four main characters.
- Apply the main theme in "Rappaccini's Daughter"—striking a balance between human needs and scientific progress—to arguments recommending a ban on human reproductive cloning.
- Who should decide what is acceptable research?

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Chapter Two

A Brave New World: An Analysis of Aldous Huxley's *Brave New World* and Robin Cook's *Coma*

Introduction

Aldous Huxley wrote *Brave New World* to show how individuality is sacrificed when the government controls and conditions its people with science and technology. It casts a cautionary light on the inherent dangers from genetically determining a society where pharmaceuticals and psychological conditioning try to keep everyone healthy, happy, and conformed until it is their time to die. The novel is timely as we enter a brave new world of genetic engineering and cloning, highlighting the issue that our technical ability to create and to manipulate human life runs well ahead of public policy. While other countries boldly advance biotechnology promising perfected, disease-free humans, in 2001 President George W. Bush said he was deeply troubled and remarked: "We have arrived at that brave new world that seemed so distant in 1932 when Aldous Huxley wrote about human beings created in test tubes in what he called a hatchery."

Indeed, many elements of Huxley's science fiction dystopia have come true: anthrax threatening economic stability; drugs controlling thoughts and feelings; artificially fertilizing eggs and growing babies in surrogates; and life-long conditioning by government and commercial concerns. But the significant advance in the late twentieth century of mapping and sequencing the genetic pattern for most organisms, called the Human Genome Project, means we can now alter human life by going for a cure rather than for a quick fix. Rapidly advancing biotechnologies give rise to hope and fear, putting legal, religious, and scientific communities at odds over our sometimes unchecked faith in technology. Advocates favor government funding for National Institute of Health projects that will fuel discovery and create medical miracles; opponents argue that the technology involved in genetically altering life is moving far

ahead of a necessary ethical and regulatory framework.

Similarly, Robin Cook said his medical thriller themes in *Coma* are not only possible but even probable. They are definitely not science fiction, he added. He puts the organ transplant industry under a microscope, giving a Hippocratic “first, do no harm” warning to doctors. Cook’s horrific plot of turning healthy patients into profitable donors develops within the power struggle of the lower and upper worlds of the hospital hierarchy. He shows the problem of drugged doctors and the dehumanization of patients, and how weakening the doctor-patient relationship contributes to medical mistakes. Research advanced in secret is also a problem.

The key issues in *Coma* are the safe procurement and the fair dissemination of human organs and the definition of “brain death,” which continues to undergo medical, religious, and cultural interpretations. At present, organ harvesting gives back life and adds to its quality; its protocol is fairly well established. However, Cook said there is a problem when the black market in human organs sells a rare commodity to the highest bidder. In addition, with technical advances 30 years after *Coma* was published, some fear scientists are bending the rules of nature and heredity by cloning transgenic or cross-species transplant organs. Stem-cell derived organs or those cloned from our own tissue promise transplant without rejection. The science is here, already being applied from other mammals to humans.

In this twenty-first century brave new world of scientific and technological advances into the secrets of life, we will all need to understand the new scientific knowledge and decide how far we want to take it. Aldous Huxley’s *Brave New World* and Robin Cook’s *Coma* highlight important bioethical and medical issues that stimulate discussion.

ALDOUS HUXLEY'S
BRAVE NEW WORLD (1932)

The theme of *Brave New World* is not the advancement of science as such; it is the advancement of science as it affects human individuals.

—Aldous Huxley (1946 Foreword)

Historical Context

The prolific author Aldous Huxley (1894-1963) wrote essays, novels, short stories, poetry, and screenplays. *Brave New World* is his best-known work. As is the case with every author, Huxley's background shaped his work. He was born in Surrey, England, on July 26, 1894, the third of four children. His father, Dr. Leonard Huxley, was an author, and his mother, Julia Arnold Huxley, was a girls' school founder. Tragedy befell the household when his mother died of cancer. The 16-year-old Aldous attended Eton but left a year later with the serious eye disease *keratitis punctata*. He was blind for more than a year, which prevented him from finishing rigorous science training and ended his dream of becoming a medical doctor like his famous grandfather T.H. Huxley.

Instead of a medical career, he received a degree in English Literature from Oxford. He married his first wife, Maria, in college, and they had a son. After Maria died in 1955, he married another writer, Laura Archera. Huxley's literary ancestors include a novelist aunt and great-uncle Matthew Arnold who wrote the famous poem "Dover Beach." Aldous' brother, Julian, was a respected biologist. An element clearly present in Huxley's novels is the indomitable human spirit, an ideal that tested the family when one of Aldous' brothers committed suicide. Huxley moved to the United States in 1937, and in 1959 the American Academy of Arts and Letters gave him the Award of Merit for the Novel. He died of cancer on November 22, 1963.

Brave New World, written in the post-World War I period of industrialization and the rise of fascism, derived from Huxley's fascination with science, medicine, and technology, as well as from his concern for problems arising from their unchecked advances. Huxley drew from several influences and projected them into an imagined totalitarian World State. First, he used the work of his outspoken grandfather, T.H. Huxley (1825-95), a biologist, educator,

and medical doctor, who was called “Darwin’s Bulldog” because his *Evidence as to Man’s Place in Nature* (1863) dared to embrace Charles Darwin’s unpopular theory of natural selection. Inspired by his grandfather, Huxley asserted in *Brave New World* that our individual freedoms must be carefully guarded, even if the stance we take is unpopular.

A second influence on Huxley was geneticist-psychologist Francis Galton (1822-1911), the Father of Eugenics and Darwin’s cousin, who believed science could increase human happiness through improving breeding patterns. He favored genetic determination over environmental influences (i.e. nature over nurture). Galton’s influence is clear in Huxley’s genetically determined caste system.

The third to influence Huxley was political economist Thomas Malthus (1766-1834), whose work fueled Darwin’s theory and influenced Huxley’s economy-driven, population-controlled brave new world by describing how plants and animals naturally produce more offspring than can possibly survive. Malthus blamed nineteenth-century England’s decline on too few resources for the increasing population and on an irresponsible lower class. He believed that only curtailing reproduction would prevent a global famine, a natural phenomenon he thought God created to keep man from being lazy.

Lastly, Aldous Huxley’s concept of life-long Neo-Pavlovian Conditioning in *Brave New World* stems from behavior scientist Ivan Pavlov’s 1880s work in human behavior. Russian chemist and physiologist Pavlov studied the digestive system, drawing a link between salivation and the stomach’s action in his stimulus-response theory. He rang a bell at the same time he offered food to dogs; then, even when no food was present, the bell’s sound caused the dogs to salivate. He called his result a conditioned reflex.

Drawing from these forbearers, T.H. Huxley, Francis Galton, Thomas Malthus, and Ivan Pavlov, Huxley created ways in his future world to artificially reproduce humans and to condition them to be content with their pre-determined lots. Writing *Brave New World* was his way to address a fear that the world was becoming spiritually bankrupt and settling into an abhorrent conformity. In his economy-driven population, physical and psychological control is essential.

In 1996 *Brave New World* was evoked when Dr. Ian Wilmut of the Roslin Institute in Scotland cloned Dolly the sheep through somatic cell nuclear transfer (SCNT). The public and press, scientists and clerics, raised the dreaded

specter of Frankenscience. As an embryologist, Dr. Wilmut said his primary objective was therapeutic (to help mankind); subsequently, he produced a human protein in Dolly's milk, creating transgenic or cross-species organisms from cloned genes. In 2005, the British government granted Wilmut a license to clone human embryonic stem cells for therapeutic use in research on motor neuron diseases like Lou Gehrig's disease. Pro-life activists condemn the decision.

With the science already in place for cloning mammals, these techniques can be applied readily to humans. Lay, religious, legal, and science communities are urgently posing specific questions about what some consider the horrific cloning of human beings:

- Is it morally justifiable to clone a dead child to fulfill his/her lost destiny?
- Couples using *in vitro* fertilization can choose the desired sex from their collection of eight-cell embryos and then discard the rest. Is this preimplantation genetic diagnosis sex selection, sex discrimination, when sperm-sorting effects the same result? During the embryo selection method horrendous diseases are genetically screened, but how does it affect humanity when other characteristics such as eye color and intelligence are isolated?
- Parents have procreated a child to provide tissues, organs, and bone marrow transplants for another child. Is there anything wrong with cloning the donor child for a perfect match?
- If you cloned yourself, who would that be?

Incredible advances in genetic engineering help infertile couples and eliminate inherited disorders such as Tay-sach's disease, sickle cell anemia, and Down's syndrome. The ability to clone, or to duplicate, humans, almost as described in *Brave New World*, is here. With biotechnological advances begun when Watson and Crick identified the molecular code of DNA and continued with the Human Genome Project, ethical challenges follow. Some twenty-first century bioethicists are asking the question, How soon will we forget World War II and the Nazi's eugenics-driven genocide?

While *Brave New World* was published in 1932, the themes in Huxley's novel take us into the debate over human cloning, with the technical ability

to create and genetically manipulate human life running well ahead of public policy. Stem cells are found in human embryos, umbilical cords, and placentas and, when divided, can become any kind of body cell. When terminated at the five-day stage, the *in vitro* fertilization process yields embryonic stem cell lines that can grow into 200 cell types, potentially repairing or even replacing damaged body parts. Proponents argue that the value of therapeutic cloning, including finding missing clotting factors in hemophilia, benefiting cystic fibrosis, and creating new anti-rejection factors, far outweighs the fact that the so-called activated cells are terminated. Opponents of therapeutic cloning fear the precedent set for experimenting on life, born or unborn, and believe no way exists to bar reproductive cloning once therapeutic cloning is legal and government-funded. The National Academy of Sciences opposes reproductive cloning. Other private and governmental bodies concur, asserting that once we have designer children and clones, the brave new world will have arrived. Individual states, like California, have passed legislation to fund state-wide embryonic stem cell research, attracting world-wide talent to what has been termed *the stem cell gold rush*.

Biotechnology continues to promise dazzling changes in modern society but some fear its power to lead the human race down a slippery slope, making it vitally important for everyone—not just scientists and the clergy—to understand this new knowledge and to decide how we want to use it.

Synopsis of the Novel

The World State's brave new world of 632 A.F. (After Ford) is a utopia Huxley imagined in 1932 and set 600 years into the future. An autocracy of 10 Controllers manages life from an artificially manufactured birth to a painless and unemotional death. Everything is done for the welfare of the human collective. Instead of old-fashioned two-parent reproduction (viviparation), maternal impulses are suppressed and eggs fertilized in bottles. Controlled through the Bokanovsky Process to fit into a class—from superior to moronic—humans have an inescapable destiny.

Neo-Pavlovian behavior conditioning controls the population who are taught that books and roses have no value. In place of religion, society worships Ford, symbolized by Henry Ford's Model T replacing the Christian cross. Repetitive subliminal messages inculcate propaganda. All games are designed to increase economic consumption and promote promiscuity. The word *family*

is vulgar. Everyone pops the pleasure-enhancing drug soma, which has no side effects and masks discontent.

The Controllers decide what is best for the common good, but from time to time things go wrong. The Alpha-Plus psychologist Bernard, a loner who is intoxicated with his own significance, is different. He fears the Director of Hatcheries and Conditioning will ban him for his non-conformity. Bernard and the lower-class woman he likes, Lenina, go on a vacation to an Indian reservation, an outpost not worth civilizing. Long ago a Beta-Minus woman, Linda, was abandoned there by the Director while they were on vacation.

Lenina feels repugnance at the wild and uncivilized ways on the reservation. Disease and death are visible, in contrast to the civilized World State. Lenina and Bernard meet the old squaw, Linda, who bore the Director a son, John. John, like Bernard, feels trapped between two cultures.

Bernard takes the two savages back to the World State, thinking he will have some leverage against the Director, who he fears will ban him for his unorthodox ways. To all in the World State, Bernard presented the savage John and his mother Linda, now old and fat; the Director resigns in petrified disgust. But all are curious about the savages.

John, who learns his mother is dying, is grief-stricken, a strange emotion in a world where an individual is insignificant among the masses. At the hospital Linda cannot communicate, making John fearful he is losing his one human connection. A group, inured to death, comes into the room, horrified at seeing Linda. Their modern medicine is able to give even a moribund sexagenarian a girlish appearance. When his mother dies, John's grief is palpable, upsetting the visiting group that associates death with pleasure. John realizes in a flash he must make this slave-world free again.

Mond, one of the Controllers, at last bans the insubordinate Bernard for causing instability. He explains the World State to John in a declaration of Huxley's core *Brave New World* ideology. Science, art, and religion were sacrificed for the common good. Drugs control the population; new discoveries are subversive and outlawed. High art is banned, too, because it stimulates individuality and blocks conformity. Religion in a youthful and prosperous society, when people are safe, well, and not afraid to die, is unnecessary. "God isn't compatible with machinery and scientific medicine and universal happiness. You must make your choice," the Controller says. They lived in a utopia where security and happiness replace desire for beauty and truth.

In the end, John, hopelessly between two worlds, faces a bleak future. He isolates himself in an old lighthouse to purify himself from the contamination of civilized life. In old-world tradition, he flagellates himself, calling on God to forgive him. For a while he lives in peace, but then inquisitive people find his pain fascinating and invade his privacy. Giving John the pleasure-inducing drug, soma, they all engage in an orgy of pain. John hangs himself. He cannot bring freedom and love to a world convincing him it was pointless to live, and he cannot return to his savage roots.

Literary Analysis

Brave New World continues to cast a cautionary light on twenty-first century bioethical questions on genetic engineering, especially with technology far outpacing regulation. Concerns are, how far should we go to fix what's wrong with us, and should this even include cloning a new and better species that is smarter, more beautiful, and more talented? In Huxley's World State, a technocratic government and its scientific elite make decisions for the good of the entire population, sacrificing individuality. Its motto is Community, Identity, Stability. In the previous era, anthrax bombs had threatened the war-torn economy during the Nine Years' War. The government's response to anthrax threats, which relates to our own twenty-first century fears of bioterrorism in the United States, was to create a one-world state and to fortify the economy by controlling the population. In order to maintain a stable community, individual identity was forsaken. The most interesting aspect to the plot is that, rather than exercising military control, biotechnologies took over. Humans were mass-produced, then physically and psychologically conditioned into a specific class, each with its own destiny. Although less time is spent on character analysis here than on bioethical issues, the five classes or castes—Alphas, Betas, Gammas, Deltas, and Epsilons—all were fixed into their predestined tasks to keep the economy running.

Huxley's imagined ectostatic (outside of the womb) method of creating human life by placing fertilized eggs into bottles eerily comes close to the now common practice of *in vitro* fertilization and the artificial womb created in 1997. Moralists fear Huxley's imagined world in which two parents are no longer required to make a baby, and the word *family* is vulgar. Huxley's idea that one fertilized egg would be cloned into 96 identical lower-class Epsilons to lock in conformity, highlights the hot contemporary debate in cloning. Geneticists

argue that cloned humans have 100 percent identical DNA but that transfer of genetic material is not the transfer of consciousness. In fact, it would be no different from naturally conceived identical twins who maintain unique personalities. But psychologists now theorize that as much as 50 percent of a person's psychological traits, such as shyness and fearlessness, are influenced by genes.

With some changes in terminology, the human condition in Huxley's futuristic brave new world does not sound very different from our twenty-first century. Instead of the pleasure-inducing drug soma to control thoughts and feelings, we have Prozac and Ritalin. The Internal and External Trust extracts hormones to keep people young and happy; we have hormone replacement therapy and Viagra. Instead of the Neo-Pavlovian conditioning and hypno-paedia, some say our subliminal governmental and commercial messages cause conformity in what we want to have and to be.

Huxley's human babies are manufactured, and a medical procedure called a pregnancy substitute gives women the psychological experience of having babies without actually having childbirth. His Podsnap's Technique artificially speeds up the ripening of embryos for extraction; we have follicle-stimulating drugs to extract ova. Instead of Malthusian belts to discourage unsterilized women from having sex and getting pregnant, we have the birth control pill, fallopian tube-tying, and male sterilization. In Huxley's World State, imperfectly cloned humans are discarded; we routinely screen for genetic faults and abort within the limits of the law. Both manipulate reproduction. Huxley's Liners and Matriculators work in the Bottling Room, placing artificially inseminated embryos into sow peritoneum-lined bottles for maturation, at which point they are decanted (born); we artificially inseminate ova with sperm in a glass dish (*in vitro* fertilization) and implant them in a surrogate human womb or artificial womb.

Underscoring Huxley's one-world utopia is the Malthusian philosophy of achieving a reproduction-consumption balance in a world without disease and fear of death. Our contemporary view is a desire for human perfection by eliminating disease, all the while consuming however much we want. In the end we wish for a painless morphine-induced death.

Hence, much of what is going on in biotechnology today is reflected in Huxley's cautionary theme, and, in particular, that we must control the rapid advances in biotechnology before they control us and our individuality. His

Brave New World, in which economic stability supersedes art, science, and religion, was written in the early 1930s before the beginning of the totalitarian Nazi state, the communist Soviet regime, and World War II. Incredibly, however, the criticism of Huxley's World State parallels that which fell on eugenics when the Nazi government sanctioned Dr. Josef Mengele's World War II medical research atrocities.

In his 1976 novel, *Boys from Brazil*, Ira Levin imagines how Mengele plans to clone a new generation of Hitlers. Levin used the twentieth-century technology to turn skin cells salvaged from Hitler into his clones who are then placed into preselected homes to mimic Hitler's youthful environment. That is, the cloned babies are environmentally nurtured to become a new race of Hitlers who will then take over the world, fulfilling a destiny that World War II cut short. Using today's technology, which is not too far afield from Huxley's 1930s theories, stored cells collected even from the dead could be cloned into a Mozart, an Einstein, and even a Hitler. Levin's novel replays the Huxley theme describing what can go terribly wrong when biotechnical scientists are left to their own devices.

In essence, *Brave New World's* reproductive methods derive from the Malthusian idea that anything not contributing to the economy, for the greater good, should be forbidden. In Huxley's dystopian vision, the family unit is obsolete because reproductive sexual intercourse would be too genetically risky and would relinquish the government's control. Instead, eggs are harvested from women taking Hormone Stimulate Surrogate, which releases the eggs and diminishes any maternal impulse. To continue a comparison of Huxley's future world and ours today, his reproductive process equates with the willing surrogate (paid or not), her womb available to host the fertilized egg of two donor parents.

Because the World State requires conformity, it creates conditions it believes are only good for the community as a whole. Subliminal propaganda called *hypnopædia* inculcates early prejudices. Soma drugs, a chemical called Violent Passion Surrogate, and multisensory movies called *feelies* promote sexual promiscuity and a sense of well-being. The Controllers have decided what is best for all. Unfortunately, Huxley's imagined social engineering, taking drugs to numb a harsher existence and having few family bonds, is not foreign to today's reality.

The Controllers use neo-Pavlovian stimulus-response to condition their

people to relate death to something pleasant. Critics say today's American way of isolating and drugging dying people tends to sanitize death. In a like manner, the World State conditions its people to not fear death, and, when faced with it, they are repulsed. Furthermore, the contrast between Huxley's imagined future world and ours today shows what might go wrong when the government controls art, science, and religion. The World State discourages literature because it might cause discontent in people thinking about the old ways. Science not contributing directly to the overall plan is outlawed, and religion has no place in a world without disease and fear of death.

In his plotline, Huxley contrasts his main characters, the nonconformist upper-class Bernard with the highly conditioned lower-class Lenina conformed to her lot in life; and the woman Linda, raised in World-State values but relegated to an Indian reservation life, with her savage son John, who is caught between worlds and cannot be happy where there is no hope and love. Huxley's characters set into the contrasting worlds, the World Society and the Indian reservation, show how class discontent begins to unravel the society. Bernard and his friend Helmholtz, independent thinkers and misfits, are joined by John, a romantic savage, to destabilize society. Passages from Shakespeare run throughout the book, signaling notions of romantic love. Achieving stability through conformity and induced states of happiness, not individual romances, are key ingredients in the brave new world. But John the savage can never be happy there because its civilization has poisoned him. Although he wants to join the banished Bernard and Helmholtz, he is denied doing so because he is still the object of an experiment to amalgamate him into the culture.

In Huxley's 1946 foreword to *Brave New World*, the author states that he erred in not giving John the savage a third choice in addition to either a primitive reservation life or insanity in utopia. He could choose to live in sanity on the borders of the reservation within a "society composed of freely cooperating individuals devoted to the pursuit of sanity," where the lofty question posed is, "How will this thought or action contribute to, or interfere with, the achievement, by me and the greatest possible number of other individuals, of man's Final End?"

Related to today, Huxley's brave new world of genetically engineered humans shows us what might happen when measures are taken to control and to condition us. The family unit is obsolete; chemicals keep people happy.

While presented as a utopia without disease and warfare, free will is lacking. Consumption of goods that boost the economy, promiscuous sexual interplay that keeps emotional attachments from forming, and the redefinition of religion and the banning of history and art are all elements that keep the totalitarian society intact.

Huxley's novel predicts the eugenics issues we currently face, first with test-tube babies and now with human cloning. Fears center on the possibility of cloning worker and controller types as well as stagnating gene pools. In summary, Huxley's caste system includes manufactured, conditioned, and conformed human beings. By contrast, our natural, so-called brute-force evolution drops genetic traits into an organism hoping for the best. There are many failures and surprises. In the end, we must all wonder how biotechnological intervention in the genetic process, such as the probability of human cloning, will interfere with evolution itself and affect the human race.

Given the legal, ethical, and social backdrop of Huxley's cautionary *Brave New World*, we should ask ourselves these major questions about genetic engineering:

- Because scientists and the biotech industry have vested interests in research, will our legislatures pass effective laws to prevent genetic determinism (physical and psychological) and genetic discrimination? (Huxley's Alphas are the genetically engineered, advantaged few.)
- What would happen if our world's gene pool became controlled by the scientific elite (Huxley's Controllers)?
- What is the present administration's stand on approving the creation of new stem cell lines for therapeutic use and/or reproductive cloning?

In our *brave new world*, which is a phrase spoken by Miranda in Shakespeare's *The Tempest*, we must all decide—not just the scientists, philosophers, lawyers, and clergy—where we want biotechnology to lead us as a human race.

Topics for Oral and Written Discussion

- What scientific, behaviorist, and psychological theories influenced Huxley and how?
- Describe Galton's *eugenics* and relate it to twentieth-century U.S. sterilization movements.
- How does Huxley's totalitarian society control its people through art, science, and religion?

- How, specifically, does the birth-to-death Bokanovsky Process create the class system?
- Unlike Huxley's brave new world, our democracy gives power and responsibility to each of us to decide where we want technology to take us. If we were genetically determined through science and technology, rather than born freely through natural selection, how might that change our society?
- What imaginable problems might arise from using biotechnology to restore prehistoric DNA?
- Describe the ethical issues surrounding human cloning. Could it ever be justified?
- Read Gleick's "chaos theory" (see below) and describe the inherent dangers in gene manipulation, especially as they are set into our non-linear world, where random, unpredictable and chaotic events override whatever type of order we try to impose.
- With each new administration, the president forms a bioethics council for guidance. What are the current views on creating new stem cell lines?
- Relate Huxley's totalitarian state to the U.S. government's increasing control over its people since the September 11, 2001, terrorist attacks on the United States.

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ROBIN COOK’S *COMA* (1977)

This novel was conceived as an entertainment, but it is not science fiction. Its implications are scary because they are possible, perhaps even probable.

—Robin Cook (author’s note)

Historical Context

Robin Cook, master of the medical thriller, was born in Brooklyn, New York, in 1940. He received an M.D. from Columbia University and did post-graduate work at Harvard Medical School. Since 1970 Cook has written about hot issues in the evolving medical field. His novels include *Outbreak* (1987), *Vital Signs* (1991), and *Toxin* (1998). Cook’s 1999 novel *Vector* about a bioterrorist anthrax attack on New York City foreshadowed the real-life event in 2001. He has a knack for anticipating public debate on controversial topics, as in *Shock* (2001), which describes the fertility industry and controversy over federal funding of stem cell research. Each novel is compelling and informing, while also exacerbating the public’s fear.

The organ transplant industry is the subject of *Coma*. Each day in 2012 an average of 80 people in the United States received an organ transplant; another 18 on the waiting list died because organs were unavailable. Driver's licenses and living wills may have an advance donor directive; however, family members often have the final word. Therefore, potential donors should tell family members of their wishes in advance. Living donors cannot donate if it is life-threatening, with uncoerced, voluntary informed consent required. Then there are brain dead donors whose cessation of brain stem function is indicated from an EEG test. Because the brain makes a person breathe, organ vitality is sustained by cardio-pulmonary machines. Ethical concerns arise when harvesting from brain dead donors because brain death is a process without a distinctly pronounceable event like cardiac death. Hospice professionals, in particular, exercise ethical care in withholding food and liquid from and administering narcotics to a patient with auditory and visual responses.

In a recent development, doctors who felt there was only a small window of opportunity for harvesting most transplant organs, now look to a 2002 University Hospital Zurich study that shows transplant success in even harvesting older organs from cardiac death donors. This goes beyond the conventional wisdom that only a few organs such as corneas and kidneys remain viable for a time in cadavers. In heart transplantation, brain death as a criterion is distinctly different from cardiac death because only a recently beating heart can be harvested. Artificial, self-contained hearts only extend life until a donor heart can be transplanted. Bioengineering a human heart from stem cells triggered to become cardiac cells is decades and billions of dollars away. Existing stem cell lines declined when President George W. Bush placed a moratorium on cloning to reap human parts. But each new administration forms policy with the help of its bioethics council.

While most industrialized nations legitimize brain death as a condition for organ harvesting, there are many cultural differences. In 1968 Dr. Juro Wada harvested Japan's first and only heart for transplant from a brain dead donor and was heralded as a hero and condemned as a murderer. China's primary source of transplantable organs comes from executed prisoners without their consent. Transplant proponents argue that fear and ignorance are great barriers to collecting transplant organs. Most major U.S. religions consider donation the ultimate act of charity and condone it. Other views prohibiting donation include the religious belief the body must remain intact in order to

be resurrected in toto; the belief that organ harvesting from a viable body equates with abortion; and the belief that the soul still resides in the body with a beating heart.

Because transplant organs are hard to get, there is a current debate over the donor's motivation or the commodification of tissues. The U.S. Organ Procurement and Transplantation Act makes it illegal to buy and to sell human organs. Because of the great gap between supply and demand, wealthy recipients would have inequitable access to donor organs. Right now only a donor's medical and funeral expenses are paid, so an American Medical Association ethics group suggested a small payment of \$300-500 or tax credits to increase donation.

Crimes of the twenty-first century include organ trafficking, and global bioethics initiatives are underway to identify the foreign countries where poor people are waylaid, drugged, and surgically relieved of their organs. Advertisements appear from time to time offering a kidney for sale from \$1-10,000. Pirated organs may be a rarity, however, because complex donor-recipient matching, the required surgical skill, and follow-up care are essential. Myths abound, such as the recipient acquires the donor's desires (liking certain foods, for instance), the donor is limited by age (minors need guardian consent), donation mutilates the body prohibiting open casket funerals, and the donor's estate pays the medical costs.

Potential donors may be afraid that indicating their wishes to donate will forestall efforts to save their lives, but safeguards are in place because the donor's medical team and the transplant team are two separate entities. Besides, the organ procurement organization is not notified until brain death is determined. Kidneys and corneas are the most transplanted organs, largely because of progressive surgical skills and fewer rejection factors. Other organs and tissues transplanted are the heart and heart valves, liver, pancreas, lungs, intestines, eyes, skin, bone and bone marrow, and tendons. A national organ donation network matches donors and recipients for blood type, medical urgency, geographical location, and time on waiting list.

Because many people die waiting for a suitable organ, recent developments in transgenic cloning are making it more feasible to transplant modified animal organs into humans with fewer rejection problems and cross-species diseases (xenotransplantation). But the real breakthrough came in 2002 when Dr. Anthony Atala of Harvard Medical School took a donor steer's skin cells

and created functioning tissues that were transplanted into the donor steer. Three months later the implanted tissues remained healthy and were performing their respective functions. In the case of humans these same principles apply to growing body parts using a person's own DNA, or body parts may derive from human embryonic stem cells, an issue mired in abortion politics. Public opinion is sharply divided on creating new stem cell lines for therapeutic versus reproductive cloning.

Regeneration technology is here. A decade later, Dr. Atala is incubating replacement human bladders in his lab. There may be no limit to the kinds of organs and body parts that can be created from scratch, taking a skin cell to grow a heart valve or kidney, for instance. Until then, we still need to address the nation's critical organ donation shortage.

Synopsis of the Novel

Coma is written in suspenseful daily and hourly entries over several weeks. It begins at Boston Memorial Hospital with Nancy Greenly's minor D and C procedure for excessive uterine bleeding. All seems to be going well when suddenly Greenly's heart beats erratically. She lapses into coma. The doctors are baffled. Greenly's diagnosis is cerebral hypoxia or oxygen deprivation to the brain. She is sent to the intensive care unit where a flat EEG indicates brain death. She becomes a tube-fed, temperature-controlled machine whose fluid-electrolyte balance and ability to ward off infection are critical. Homeostasis, or a balance of her body's functions, is difficult to maintain.

On her first day as a third year medical student, the beautiful Susan Wheeler enters surgical clinical rotation on the ICU ward, and she connects with Greenly, also 23. She sees the comatose Greenly as "a casualty of medicine, a victim of technology" and wants to understand what went wrong. In her second encounter with a patient, Susan starts the I.V. on Sean Berman, an athletic architect in for knee surgery. They make a date, but, like Greenly, he falls into an irreversible coma. Later in the ICU, Susan's superior, surgical resident Dr. Mark Bellows, draws the comatose Berman's blood for analysis while the contentious Susan Wheeler grills Chief of Anesthesia Robert Harris about the hospital's high risk statistics. She decides to look into the problem, but the realist, career-driven Mark Bellows bows out.

Susan's investigation begins with scrutinizing the chart on Nancy Greenly's

physical exam. Trained in the scientific method, her extensive research continues in the medical school library on “anesthetic complications followed by prolonged coma.” She discovers a long list of possible causative agents for coma or disrupted brain function, and that her hospital had 100 times more cases like Greenly’s and Berman’s than the rest of the country (or 11 deaths in 25,000 surgeries). Half of the cases were never reviewed by a medical examiner. Susan watches an autopsy and learns of the hospital’s high number of unexplained respiratory arrests and resuscitation failures.

Susan tells Dr. Nelson, the chief of medicine, and Dr. Harris, chief of anesthesiology, about her findings and requests their help. One confiscates her research data, and the other physically threatens her. Both show her the door, close it, and immediately make a phone call. Chief of Surgery Dr. Stark seems more sympathetic to Susan, acknowledging that Dr. Donald McLeary, a neurology professor, has signed out all the patients’ charts. When Susan tells Mark Bellows about her encounters and her strong intuition of foul play, he admits problems but asks for a possible motive. He sees no conspiracy, saying he is more concerned with the cache of drugs found in his old OR locker. Mark worries about Susan’s delusional crusade, but their relationship takes another turn during a romantic date.

The next day Dr. McLeary advises Hospital Director Oren how disruptive Susan has become, and Dean of Students Dr. James Chapman switches her surgical rotation to the V.A. hospital. On her way home from the hospital, she runs in panic from someone following her. Later that evening, the same man accosts her at home and threatens her family if she continues her investigation. After regrouping, Susan reviews her research and sneaks into Dr. McLeary’s office to get the coma patients’ charts. She tells Mark of the conspiracy she suspects involving Harris, Nelson, McLeary, and Oren. Mark informs her of finding Dr. Walters dead in his condemned house. He left a suicide note.

Susan discovers all the coma incidents happened in OR8, and she finds a carbon monoxide gas line running from a hidden boiler room tank connecting to the oxygen line in OR8. Hoping to get some respite in her dorm room, she instead finds the hired hit man there, and he chases her through the vacated hospital campus. They have a grotesque confrontation in the hospital anatomy lab.

In the meantime, Berman was transferred to the private Jefferson Institute in South Boston, a state-of-the-art government-built facility for chronic care

comatose patients. It is a large rectangular building with no first-floor windows. Visitors are not encouraged, but Susan reviews the building plans on file with the city and goes disguised as a nurse for a tour. The facility has advanced computer technology that keeps 132 naked coma patients in homeostasis, eerily suspended by wires four feet above the floor in a climate-controlled atmosphere. As the tension builds, Susan goes exploring on her own in the facility, intent on finding Berman's body. She enters what is indicated on the floor plan as an OR, and suddenly the motive for creating comatose patients becomes clear: "The Jefferson Institute was a clearinghouse for black-market human organs!" She is discovered but escapes. She calls Dr. Stark, telling him the secret of the Jefferson Institute. Carefully typed surgical patients have had carbon monoxide added to their anesthesia. In addition, they have received shots of succinylcholine in their IVs, causing brain hypoxia, all of which was undetected in the ICU. A secret corporation has masterminded how to keep the bodies alive until their organs can be harvested and sold for big profits.

Susan meets Dr. Stark at his office—he has warned her not to tell anyone. After drugging her, he talks about his three-year plan to create the Jefferson Institute. The sale of its product helped rebuild Memorial Hospital, he rationalizes. The drug-addicted Dr. Walters with a cache of narcotics in his OR locker was not a part of the organization; his suicide was faked only so the police would not investigate the hospital. Dr. Stark's transplant work, he argues, will benefit mankind, helping to learn the secrets of immunological mechanisms and to advance the transplanting of all human organs. Like Leonardo Da Vinci, who secretly dug up corpses for dissection, he believes the Jefferson Institute is also beyond the law. Sometimes secrecy is needed because the common man would not understand the immense gain to be had for the greater good.

Stark schedules the drugged Susan Wheeler for an emergency appendectomy, administering the anesthesia in OR8. Dr. Bellows remembers what Susan had said about the mysterious valved line and investigates, reaching the OR just in time to save Susan. The police arrest Dr. Stark, ending his skewed rationale for transplant research.

Literary Analysis

In *Coma*, Robin Cook, a trained medical doctor turned writer, describes the carefully controlled chaos of a major urban teaching hospital. He takes us all

over the hospital—from the dingy basement to the lofty Grand Rounds—putting the American transplant industry under a microscope. The novel's central theme reveals the controversy surrounding our search to define *brain death* and the way transplant organs are procured and disseminated. In his author's note Cook says he intends to entertain, but *Coma* is definitely not science fiction. His belief, which contradicts the U.S. transplant industry's official stance, is that scarce organs are pirated and sold to the highest bidder every day.

At the time he wrote *Coma* in 1977, he also saw as unacceptable the definition of brain death, which, as noted earlier, is contrasted with cardiac death. The American Medical Association and various transplant organizations are trying to improve legislation to effect a greater number of donors by offering financial and moralistic incentives, by educating the public on the need for donor organs, and by dispelling myths and misconceptions. However, the significant problem remains of legally obtaining the donor's and the family's timely permission to harvest organs. The revised Uniform Anatomical Gift Act, promulgated in 1987, increased donor awareness but has not solved the problem of providing enough transplant organs.

The way Cook describes the hospital hierarchy is important to weaving *Coma's* sinister plot. The viewpoint is mostly third-year medical student Susan Wheeler's. She has left her intensive book learning and just started her clinical surgical rotation, going on the ward with patients for the first time. She and four others are on the bottom professional rung. Doing scut work—and often learning from the more competent nurses—they do not have much credibility and power. They do not have much confidence, either, often feeling like imposters. Small accomplishments, like successfully inserting an IV needle into a vein, cause euphoria. One student faints at his first operation, not an uncommon happening. The bright and beautiful Susan Wheeler feels panicked, like the rest: Could she make the life and death decisions expected of her?

The medical students' superiors are the residents (first year residents are often called interns). Wheeler's immediate supervisor is intermediate surgical resident Mark Bellows, who is responsible for her learning and for her actions. George Chandler is the chief surgical resident, a job Mark Bellows competes for. Bellows does not want to make waves when the spirited Susan Wheeler tells him of a horrific hospital conspiracy to turn healthy patients into profitable organ donors. Her investigation shows a high incidence of prolonged coma resulting from anesthetic complications in surgery. But, one by one, as

she naively approaches her superiors for help, they try to quash her efforts with a patronizing response. In the patriarchal system of Susan's time, her aggression makes her "a castrating bitch." Conversely, if she had taken a passive, more compliant stance in her daily duties, she would be told that she cannot compete. The hospital's lower and upper worlds collide, all within the terror of a conspiracy, and Susan's life is threatened.

Because the book was written in 1977, time has changed the system somewhat. For example, Susan Wheeler describes the "paradoxical loneliness" of being the only woman on her rotation, among all-male superiors: "She felt she was entering a male club; she was an outsider forced to adapt, to compromise." Now, however, more women are entering medical school than men, but the hospital hierarchy Cook describes is still in effect today.

As would be expected, Cook describes the antagonism existing between medicine and disease. He also gives enough technical descriptions of operations and details of diseases and autopsies to satisfy pre-med students. Realistic accounts of the intricacies of applying anesthesia and of the drama of performing surgeries add to the growing terror. Surgeons are seen as the conquering warriors. Dated accounts of computerized medical research will make today's students appreciate what is currently available.

Interwoven into the high tension of a covert hospital conspiracy, Cook portrays the problem of drug-addicted doctors, the dehumanization in the medical field, and the doctor-patient relationship. For instance, a hoard of narcotic drugs is found in an attending surgeon's hospital locker once assigned to Mark Bellows. The hospital wants the investigation kept internal and private, a conspiracy of silence. The story puts a spotlight on the medical profession's efforts to deal with stressed-out doctors whose narcotic licenses make it too easy to self-medicate. Now programs help with recovery to return valuable medical professionals to their work.

Also as shown in *Coma*, doctors' dehumanizing patients leads to errors in their medical judgment. Cook's conspiratorial and cynical doctors detach from any human connection with their coma victims, avarice and greed being chief motivators. In fact, generations of doctors were taught to have "detached concern" and not to get too close to a patient. But now having empathy is linked with communication for better doctoring. An unnatural distance also creates a level of dissatisfaction in the doctor-patient relationship and eventually physician burnout. Susan Wheeler's human connection with her two coma

patients, in particular, and her attention to detail sustained her investigation all throughout *Coma*. To borrow from legendary humanist doctor Sir William Osler, with patients as texts, the best teaching during clinical rounds is done by the patients, themselves.

Topics for Oral and Written Discussion

- When, if ever, is it justifiable to sacrifice the few, medically speaking, for the majority?
- What cultural and religious differences influence organ donation?
- What motivated Dr. Stark and others to create coma patients?
- While most students on their first clinical rotation feel insecure and like imposters, what special problems does Susan Wheeler have being the only woman “in a male club”?
- How does a doctor’s lack of communication (or empathy) contribute to medical mistakes?
- How can potential organ donors indicate, in advance, their wishes?
- What is the different between “brain death” and “cardiac death” in harvesting organs?
- How will the commodification of organs change when they can be grown from cells?
- What are the problems with xenotransplantation?
- How do the differences in the hospital hierarchy contribute to Cook’s plot?

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Chapter Three

Contagions/Isolations: An Analysis of Albert Camus' *The Plague* and David Feldshuh's *Miss Evers' Boys*

Introduction

Camus, a World War II French Resistance fighter, wrote *The Plague*, intending “plague” to represent all imprisonments. It characterizes the despair felt in occupied France during the 1940s when Nazism sneaked up on Europe and almost destroyed it. A work of great literary imagination, it emphasizes the re-emergent nature of all contagions, shedding light on contemporary plagues such as AIDS. At issue is how the government and medical personnel in the unsuspecting town of Oran, Algeria, fail to enforce in a timely manner the city medical code by identifying the scourge, putting a vaccine into use, and isolating the town from the outside world. There are questions, as well, about media responsibilities in a medical crisis, illustrating how desperate people fall victim to quackery and superstition. Each character in the novel is exiled from the outside world and deprived of not only food but love, teaching us lessons about its importance to wellbeing and to happiness.

In Oran's collective destiny one self-sacrificing doctor works within the community's changing dynamics, highlighting political, social, economic, and religious issues. In the unrelenting nature of plague his medical ethics are challenged, provoking philosophical discussions about man's morality in an atmosphere of every-man-for-himself. The label *heroism* is also scrutinized as a descriptor subject to exaggeration and abuse. In Oran's dire situation, the tactics of the spiritual leader are scrutinized when, rather than providing comfort, he strikes fear into hearts by preaching that God afflicted them with plague as punishment. In the end, people die off, and the government and priests seem ineffectual, leaving the reader to appreciate the value of a selfless doctor and to contemplate his warning that literature teaches the plague never disappears for good.

Just as in early views of plague, sexually transmitted diseases carry significant stigma as deserved punishment. The primary issue in *Miss Evers' Boys*, however, is how the U.S. Public Health Service conducted clinical experiments during the Tuskegee Syphilis Study (TSS) from 1932-1972, and how doctors, in their scientific fervor, forgot the black subjects were people like themselves.

A brief look back at racial discrimination helps to put *Miss Evers' Boys* in context. It did not end with the 1863 Emancipation Proclamation, fortified in 1865 by the Thirteenth Amendment's abolition of slavery. Segregation during the next decades of the so-called Jim Crow Era kept stereotypes of African-Americans intact, hurting them economically, politically, and educationally. Only with the Civil Rights Act of 1964, shepherded in by President Lyndon Johnson, did racial segregation and discrimination become illegal in all of the states.

For the 40 years of the TSS in a climate of segregation, the U.S. Public Health Service looked on as 399 syphilitic black men suffered and infected others. The subjects received the standard of care in the beginning but were denied the silver bullet treatment, penicillin, until a whistleblower exposed the injustices. In 1997 President Clinton formally apologized to the few survivors, calling them "a living link to a time . . . many Americans would prefer not to remember, but we dare not forget." Calling the study a betrayal by medical people who should have offered care and a cure but instead lied and denied help, he continued: "What was done cannot be undone. But we can end the silence. . . . What the United States government did was shameful, and I am sorry." The National Center for Bioethics in Research and Health Care has emblazoned these words on its website, after receiving a 1999 federal grant to establish a center that memorializes the TSS participants, hoping to prevent future ethical lapses in minority studies.

Other issues arise from David Feldshuh's historical medical fiction. Where there is a legacy of distrust in the African-American experience, how do you get subjects in research that benefits them? And what lessons have public health bioethicists learned from the TSS for reviewing protocol in current infectious disease research studies?

ALBERT CAMUS'
THE PLAGUE (1946)

As he listened to the cries of joy rising from the town, Rieux remembered that such joy is always imperiled. He knew what those jubilant crowds did not know but could have learned from books: that the plague bacillus never dies or disappears for good. . . .

—Albert Camus, *The Plague*

Historical Context

The Algerian-born French philosopher Albert Camus (1913-60) was a novelist, dramatist, and journalist. His father was killed in World War I, and his illiterate and deaf mother raised him and a brother in poverty, making for a very unhappy childhood. He studied philosophy at the University of Algiers, quitting for a while for health and financial reasons, but he graduated in 1936. Camus held a variety of jobs and joined and quit the Communist party. He lived in poverty most of his life, and being afflicted with tuberculosis motivated him to write about contagion and isolation. He moved to Paris in 1940.

During World War II he became a member of the French Resistance. He wrote political essays, but his most famous work is *The Plague*. Camus viewed man's condition as absurd and meaningless, which aligned him with the existentialists; however, in *The Plague* he describes how courageous humans can be when faced with increasing alienation in an indifferent world. In 1957 Camus received the Nobel Prize for Literature. He died in an automobile accident in 1960 at the age of 46.

Literary views of plague, besides appearing in Greek mythology, are described in the Bible's Exodus: God brought 10 plagues upon the Egyptians until the Pharaoh let the Israelites go. Ever since it has been seen as a deserved punishment. For the next 800 years plague, which could be bubonic plague, smallpox, or gonorrhoea, descended upon unsuspecting populations, brought by trade routes and war. It drastically reduced populations and brought famine. Western Europe was relatively disease-free from 800 until the fourteenth century, and medieval civilization flourished. Then the Bubonic Plague (1348-50) hit Europe, killing more than 25 million people, both peasants and gentry, bringing a great recession to Europe. Sieneese chronicler Agnolo di Tura wrote,

“No one wept for the dead because everyone expected death himself.”

The bubonic plague (Greek *boubon*, meaning “groin”), a disease caused by the bacterium *Yersinia pestis*, spreads from infected rodent’s fleas that bite humans, causing their lymph glands to swell. In advanced cases the skin turns black, hence the alternate name, the Black Death. The plagues had high mortality rates. Up to two-thirds of the population died in each epidemic. When the attacks lessened, so did the immunities, and populations became vulnerable again. Only a fire could contain the Great Plague of London of 1665. A nineteenth-century increase in hygiene, purer water supplies, and efficient garbage disposal decreased European plague epidemics. But in 1894—to show the global nature of contagion—plague killed 100,000 in Hong Kong. Plagues, exacerbated by famine and warfare, change the political, social, economic, and religious dynamics of a country forever.

Contrary to popular belief, the bubonic plague is not a thing of the past, although it is an extremely rare, sporadic event. About 20 cases appear in the U.S. each year in endemic areas of the rural West. For people treated with antibiotics, recovery is imminent. The media, however, can cause quite a stir by recalling the Black Death that had devastated medieval Europe. Plague, a naturally occurring bacteria and generally not a public health threat, is preventable by washing hands with soap and water and being wary of handling, dissecting, or skinning wild animals. People should watch out for fleas or ticks, keep yards clean, and properly dispose of garbage that attracts rats. Ironically, the second-century Greek physician Galen announced that poisonous swamp vapors spread plague, so people did not wash, believing opened pores in skin would let it in.

Other epidemics of influenza, smallpox, polio, and tuberculosis have killed millions of people. So-called modern plagues, such as HIV, the human immunodeficiency virus, that progresses into AIDS, acquired immune deficiency syndrome, have been identified across the world in all strata of human life, leaving Africa, India, China, and Russia in crisis. It revitalizes fears about a rapidly globalized world with everyone in close contact, and immigration, prostitution, and urban decay as contributing factors. It all reflects on Louis Pasteur’s observation, “The microbe is nothing, the terrain is everything.”

Synopsis of the Novel

Camus’ *The Plague*, divided into five parts, chronicles the yearlong story of

Oran, a dismal commercial seaport battling the plague. One fine April day in the 1940s Dr. Bernard Rieux, a 35-year old physician preoccupied with sending his ailing wife to an out-of-town sanitarium, steps on a dead rat. Police magistrate M. Othon notices others. Later, Parisian journalist Raymond Rambert interviews Rieux for a story about lack of sanitation in the Arab population, but because the publication will compromise the truth, Rieux steers him to the dead rat story instead. Rieux's friend, Jean Tarrou, tells him about seeing more convulsing, dying rats. All but the doctor's mother, who comes to keep house for the doctor and his son, are unsettled by the events; she has lived through war, depression, and a husband's death.

Dead rats begin appearing by the thousands. Then just when a sudden drop in the numbers causes the town to feel hopeful, the concierge M. Michel has fever, thirst, delirium, and dies. He is the first plague victim. Rieux fails to make the diagnosis, and only his old asthmatic patient who survived the 1812 Spanish flu recognized it as the first phase of an epidemic. With increasing deaths, Rieux realizes the plague has taken their ordinary town by surprise, just as a war might. The city government issues propaganda bulletins, treating it as a problem of bad hygiene and sanitation. It takes too long to apply the municipal medical code. Dr. Castel, who had seen plague in France and China, develops a vaccine, but there is only a limited supply. Three months into the plague there are 700 deaths a week. Without quarantine, the epidemic rages out of control, and the gates of Oran are finally closed.

Rieux's medical duties never end as he connects with the isolated townspeople. For example, the bureaucrat Joseph Grand confides in him that his failed marriage resulted from his working too much. He did not make his wife feel loved or offer her hope for a better future. He remains commerce-driven and loveless, obsessed with writing the perfect novel. The journalist Rambert asks Dr. Rieux to certify him plague-free so he can leave the city to join his lover. Rieux, taking a moralistic stance, cannot oblige. Sending patients into quarantine, separated from loved ones, and witnessing daily suffering and pain cause Rieux to harden his heart.

Father Paneloux, the city's main spiritual leader, delivers a fiery sermon at the end of a Week of Prayer. Citing Exodus in the Bible, he preaches that plague is a deserved scourge sent as "punishment for their sins," just as God had brought plagues down on Egypt "to strike down the enemies of God" and to "humble the proud of heart." It will separate out evildoers, or the wheat

from the chaff. Salvation, he concludes, only comes to repentant sinners who embrace God's teachings. Paneloux's sermon creates widespread panic among the "condemned," especially when a new form of bacillus, pneumonic plague, causes terrible suffering and seems vaccine-resistant. Adding to the pressure, supplies dwindle, and dogs and cats are killed as possible carriers of plague. Newspapers warn of long imprisonment for breaking rules. A new paper, *The Plague Chronicle*, publishes the progress or recession of the plague, but is prone to quackery, advertising "infallible antidotes against plague."

Some people scramble after the latest amulet, while others pore their hearts out into recovery efforts, causing Dr. Rieux to make observations about heroism. He cautions against "attributing over importance to praiseworthy actions," which may pander to the worse side of human nature; that is, heroes should not be coined from acts of normal human decency. To Rieux, Grand, who volunteers to record plague statistics, embodies quiet courage because he does so with the "large-heartedness that was second nature with him." Grand believes he is simply taking a stand. Rambert is another matter. Rieux finds Rambert's persistence admirable. But he has been so obsessed with the challenge of escape that he has just about forgotten his motivation: to be with the woman he loves.

Most citizens of Oran are slackers, resigned to being plague victims, and by mid-summer plague reaches crisis levels. Martial law and curfews help contain areas of town cordoned off, but panic strikes. Townspeople, hoping to kill plague by burning their homes, set fires that often rage out of control. In a holocaust of confinement and of deprivation, "No longer were there individual destinies; only a collective destiny, made of plague and the emotions shared by all." With mass burials, there are no more individual death rites. Isolated people feel the gnawing pain of separation and now face an unflagging adversary that kills off the capacity for both love and friendship.

In the fall the "town lay prostrate, at the mercy of the plague." Survivors, gripped by fear, carry on, sometimes reflecting sentimentally on what had been. At a performance of Gluck's opera *Orpheus*, the plague-stricken tenor collapses on stage. Meanwhile, the godless Rambert still plans his escape, rationalizing that he needs another human to give his life meaning. But, overwhelmed by shame, he has a change of heart, deciding the plague is everyone's fight. The battle gets particularly poignant when the new Castel vaccine is first tried on M. Othon's young son Philippe. In the final stage of the disease,

Philippe's vaccination is ineffective, and, after great suffering, he dies. The incident causes great moralizing among Rieux, Castel, and Paneloux about how an all-powerful God can allow little, innocent children to suffer. Something changes in Paneloux after he sees Philippe die. It causes his second sermon to reflect on the nature of good and evil and to suggest that "the child's sufferings would be compensated for by an eternity of bliss awaiting him."

These are extraordinary times, Paneloux warns, and God is testing everyone. In this fight against evil either you are saved or damned. With "no island of escape in time of plague," echoes of fatalism ring throughout the church. For Paneloux everything is in God's hands. Later when his temperature spikes and he coughs up blood, he declares that it is illogical for a plague-stricken but faithful priest to call in a doctor. With this resolve, he dies. Then the epidemic reaches its high watermark with people scrambling to purchase waterproof clothing, believing rubberized material will safeguard against infection. With the new pneumonic form of plague spreading, fatalities increase across town. The newspapers, as ordered by the authorities, project a false optimism no one believes.

Toward the end, Tarrou has a heart-to-heart talk with Rieux about the plague within all of them. His father, a public prosecutor, was a kindly man, although an adulterer. But one day Tarrou learned his father prosecuted a young criminal condemned to die. From that day on, he considered his father a murderer. He left home, becoming an advocate against the death penalty. After a long talk, Tarrou and Rieux take a symbolic swim together. As Christmas approaches, they all have become weary in the prison of plague. For Rieux, facing death and despair every day has taken its toll on him. He concludes that "a loveless world is a dead world."

Then one day, Rieux notices that rats have not been seen for a while, and the human death toll is subsiding. With hope restored, the authorities open the gates. The new serum is working, and it seems "the plague had been hounded down and cornered, and its sudden weakness lent new strength to the blunted weapons so far used against it." Rieux even dares to envision a reunion with his long-absent wife when Tarrou is stricken and dies, the victim of two types of plague. Rieux had been unable to help.

While lamenting the loss of a friend, Rieux gets a telegram stating his wife has died of tuberculosis, which he has been powerless to cure. He has lost the human love of a friend and of his wife, but there is no time to grieve. While

listening to the townspeople's cries of joy at anticipating the end of plague, he sees a dog dig at fleas. He knows the plague bacillus can lie dormant for years and years in furniture and linen-chests; that it bides its time in bedrooms, cellars, trunks, and bookshelves; and that perhaps the day would come when, for the bane and the enlightening of men, it would rouse up its rats again and send them forth to die in a happy city.

Literary Analysis

This analysis focuses on the social, political, economic, and religious aspects of the plague's effect upon the North African coastal town of Oran, Algeria, population 400,000. Camus was a World War II French Resistance fighter when he wrote *The Plague*. Its allegorical significance begins with the epigraph, setting the tone for the plague to symbolize the scourge of Nazism and to represent occupied France during the 1940s as well as all imprisonments, past, present or future. Through linking plague and Nazism, Camus warns the reader to learn from history and the literature that encapsulates it.

In an atmosphere of unrelenting gloom, his riveting novel asks us to consider the value of human life. It describes the course of a disease at its first inkling, to isolating the city from the outside world, to finally opening the gates almost a year later under the presumption the good fight has won over the horrific disease. The narrator, who is not identified until the end, relies on data collection, eyewitness accounts, and official documents to report the medical effects of plague on Oran. In the unattractive seaport the people are so habitually intent on commerce that the town even faces away from the life-enhancing waters of the Mediterranean Sea.

Existential views of finding meaning in daily accomplishments and accepting earthly existence as finite generate from Camus' work. In Oran's collective destiny where death is wide-scale, one man, Dr. Bernard Rieux, stands out for his major contributions and self-sacrifice. He works within the community's changing dynamics, showing the unrelenting nature of plague and provoking philosophical discussions about man's moral duty to preserve life. Every day the suffering he witnesses causes him to confront loneliness, and during non-stop medical rounds only minor victories bring triumph over universal despair.

Ironies abound in the novel, starting with the medical authorities' failure to face the truth, fearing they might alarm citizens. At first, the government-run newspapers give daily tallies of dying rats, but they omit human deaths.

Relying on faulty statistics, Rieux is slow in identifying the scourge. There is a standoff between Rieux, who simply wants to convince the authorities to take proper medical measures to save lives, and the politicians, who are afraid of losing their positions should they err in judgment. The situation generates an atmosphere of every-man-for-himself, except for Dr. Rieux who ministers to all. The government's ineffectual response provides a study in bureaucratic reaction to infectious disease, where martial law and curfews cause panic and attempts to vaccinate are often too little, too late.

Although Dr. Rieux urges isolation, medical association president Dr. Richard balks. Only Dr. Castel, who has seen plague in China and France, takes a stand. He invents a vaccine that is immediately in short supply and then becomes obsolete when a new pneumonic plague emerges. The authorities have the newspapers report a false optimism no one believes. In desperation, people fall victim to medical quackery, from believing a winery's slogan that consuming large quantities of wine creates immunity, to a new *Plague Chronicle's* ads for "infallible antidotes."

The Plague is a good character study as well, showing how various people cope in forced isolation. In this human drama several people join in solidarity with Dr. Rieux to battle their common enemy. In particular, Rieux's professional ethics are apparent when he asks the Parisian journalist Raymond Rambert to write the whole truth of their situation in Oran. Then, later, when Rambert, who finds himself in the wrong place at the wrong time, begs Rieux to certify him plague-free so he can return to a lover he calls his wife, Rieux cannot, for "the law was the law." All live in a state of constant fear, and their vulnerability is brought home to them when even during Gluck's opera *Orpheus* the tenor collapses on stage. The opera's theme evokes Rambert's attempt to reunite with his loved one; however, when weighing personal happiness against the greater good, he simply cannot abandon his friends and the fight.

Rieux's friend, the newcomer Jean Tarrou, symbolizes the resistance fighter who organizes volunteers. Duty for Tarrou, like Rieux, is paramount, even if he's the lone survivor who remains to wash dead bodies. His moralistic code is simple: as a good person he must stay and fight the battle. For Tarrou, a threshing machine symbolizes the authorities and the plague that inflicts damage upon the victim. His black-and-white morality took hold when, as a youth, he witnessed his prosecutor father cause a young criminal to die. Tarrou's swim in the sea with the young healer, Rieux, binds their friendship, until a whirlpool

forces them to shore. Tarrou is the counterpart to Cottard, the symbolic collaborator, a criminal who attempted suicide, but once the authorities became preoccupied, he turned to smuggling.

In another criticism of bureaucracy, Camus portrays the municipal clerk Joseph Grand as a daily plodder so absorbed in work he does not know his neighbor. He represents the townspeople of Oran who with their noses to the grindstone let the small details of daily living overwhelm its larger significance. Grand's wife leaves because he cannot show her affection and cannot promise hope for the future, but he persists in trying to write a great novel. Finding the right word for Grand's first sentence serves as a diversion for Rieux and others, acting as the novel's leitmotiv to represent the indomitable human spirit.

Rieux contrasts Grand's ingrained work habits, overlaid by routine volunteer activities, with Rambert's more dramatic decision to stay and to fight. This causes him to reflect on the nature of morality, or acting well in a given situation. Rieux theorizes it would be simply unconscionable for the decent man not to respond, and therefore it is inappropriate to make him a hero. That is, to free themselves as prisoners of plague requires common decency, simply doing a job week by week. In a town where many survivors have become cynical, Rieux sees Grand as the closest to a hero for maintaining a business-as-usual sanity. Grand has no illusions about the dire situation. He acts well in it, exemplifying ingrained integrity, which reminds us that standards to measure goodness are imperfect and that using the label "hero" may be subject to exaggeration and abuse.

Each in his own way faces the plague's desolation, reflecting the conditions of World War II prisoner-of-war camps. Lacking freedom and at times minimal sustenance, some question God's existence. The Jesuit priest Father Paneloux's fire-and-brimstone sermon ending the Week of Prayer strikes fear into the hearts of the people. He does not hold out God's love for their salvation but rather uses Christian doctrine as a threat to bring the commerce-driven townspeople back into his fold. He first preaches from Exodus that God sent plague down on Oran to separate the wheat from the chaff, the believers and nonbelievers, and that He was punishing them into becoming better people. A small child dying a horrible death after receiving a vaccination prompts an orthodox religious discussion. Rieux cannot understand how God would let an innocent child suffer so, but Father Paneloux says humans cannot understand "what is meant by 'grace.'" The incident causes Paneloux to soften the tone of

his next sermon.

Suffering increases as the pneumonic vaccine-resistant plague takes hold, and so do discussions of religion. Father Paneloux, Rieux feels, is theoretical, not attuned to human suffering, and cannot possibly know the truth of their dire situation as does he who takes the bedside vigil. How can plague have a good side by helping “men to rise above themselves”? Life is sacred, period, and Rieux, even if seen as prideful, must relieve suffering and pain through whatever means available. A thinning congregation now wears prophylactic St. Roch medals, and superstition has usurped the place of religion. Priests, like government, become ineffectual as people die, and mass burials take the place of religious rites. The priest Paneloux succumbs to the plague and dies, believing until the end that his faith, only, would protect him, and that he had no need of a doctor.

Dr. Rieux is seen as a true healer, a saint, for whom there is no rest. With a singleness of purpose he carries on, quarantining infected people. By Christmastime, the death toll is subsiding so the town plans to open its gate. Grand seems infected and burns his manuscript, then recovers to renew his efforts. Unpredictably, the valiant Tarrou contracts the plague and succumbs about the same time Rieux receives word that his wife has died.

In the end, Rieux, whose exhaustion might leave him prey to crippling emotions, understands “No resource was left him but to tighten the stranglehold on his feeling and harden his heart protectively.” For him, the relief he needed to maintain sanity, in his wife’s absence, must come from his mother’s unconditional love. With the disease lessening, Cottard’s fears return, and he goes insane; Rambert greets his lover at the open gates; and Grand returns to what he hopes will be a literary masterpiece. Dr. Rieux, who we learn is the narrator, focuses on finishing his plague chronicle to provide a lesson that plague can strike the strong and weak at any time.

Topics for Oral and Written Discussion

- Define bubonic plague and discuss its history, symptoms, and remedies.
- What is the allegorical significance of *The Plague*?
- Discuss Camus’ views in *The Plague* of suffering, death, and religion.
- What do Dr. Rieux’s relationships with Tarrou, Grand, and Rambert reveal about his morality?

- How are the major themes of isolation and solidarity, suffering and the value of human life, and hope and despair played out in the novel?
- What roles do women play in the novel, especially Dr. Rieux's supportive mother and M. Othon's wife, who fights to release her husband from quarantine?
- What lessons should we learn from Camus' description of the increasingly complex and symbiotic relationship between the media and medicine?
- Relate *The Plague's* description of waves of plague, ebbing and flowing, to a recent newspaper account of a viral outbreak in your community.
- In light of Dr. Rieux's views on heroism, who, in your estimation, is a true-life hero?
- How does AIDS, a modern global disease challenge, shatter the illusion that industrialized nations are immune to epidemics?

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DAVID FELDSHUH'S
MISS EVERS' BOYS (1990)

By too much frolickin' you can get a dangerous sore down below on your private parts and through that sore a bug can crawl inside you and you won't even know it. And then that bug goes to sleep for twenty or thirty years so it's not hurting anybody but you. Because when it wakes up, you can't walk, you can't breathe, you can't think. That's bad blood. That's what you got.

—Nurse Evers in *Miss Evers' Boys*

Historical Context

Syphilis is a chronic, contagious systemic disease caused by the microscopic bacterial spirochete *Treponema pallidum*. It cannot survive for long outside the body and enters through mucous membranes or skin, typically sexually transmitted (venereal); passing from mother to unborn child (congenital); or spreading through blood transfusions. Its four recognizable stages are primary, secondary, latent, and tertiary. Treatment should begin at first indication, usually when, in the sexually transmitted kind, a chancre or lesion appears on the genitals within four to six weeks of infection. If untreated, the secondary stage from six to 12 weeks after infection includes headache, fever, nausea, swollen lymph nodes, rashes, sore throat, and fatigue. Lesions may persist, and grayish patches with red areolae may occur in the mucous membranes of the mouth and genital region. Hair patches often fall out (alopecia areata).

After three months, symptoms may come and go but the whole body is now infected as bacteria invade vital organs, bone marrow, and the central nervous system. During a period of latency, from a few years to the end of life, the afflicted may appear and feel normal, except for vague discomforts or eye disorders. But one-third of untreated infections develop into the dreaded tertiary stage, often many years after first infection, bringing painful lesions or tumors. By this time, the bones are eaten away, and an infected brain and heart lead to insanity and then death. Syphilis is contagious until its latent stage. In developed countries antibiotics given for other indications may cure undiagnosed syphilis, and aggressive public health education helps contain its spread.

Christopher Columbus, who exposed vulnerable American Indians to pathogens such as smallpox and measles, is commonly blamed for bringing

syphilis back from the New World to the Old World. However, new forensic research might prove syphilis existed in Europe before 1493. What is known is that at the end of the fifteenth century a great syphilis epidemic hit Europe, with the rate of infection in French soldiers so horrendous it stopped a planned invasion of Italy. Since then, syphilis has been called the French Disease. Early treatments included mercury ointments, oral applications, and vapor baths that usually did more harm than good. Often “sinful” syphilitics were isolated in leper colonies or hospitals. Later in the 1800s potassium iodide was an effective treatment.

The breakthrough came in 1905 when German microbiologists Schudinn and Hoffman identified the bacteria. Their important discovery led in 1906 to the Wasserman test for detecting syphilis and in 1908 to Paul Ehrlich’s arsenic treatment, Salvarsan (meaning “I save”). Salvarsan was a landmark silver bullet technique that targeted a disease without inflicting undue harm on the victim. Ironically, with the advent of Salvarsan came a strange backlash. Elements of society believed giving a cure to the sinful intervened in God’s punishment of them and promoted promiscuity. Nonetheless, only one in 100 treated patients recovered until, in 1929, British bacteriologist Alexander Fleming ushered in the antibiotic era with his accidental discovery of penicillin. Although not widely used for 15 years, it is still used today, even though bacteria continually evolve into penicillin-resistant strains.

In Macon County, Alabama, in 1932, the U.S. Public Health Service began the Tuskegee Syphilis Study (TSS) among 600 poor African-American men, who were later excluded from new penicillin treatments. Researchers, who believed syphilis developed differently in blacks, wanted to study the population to improve health conditions in the rural South. For the next 40 years, 399 subjects with late-stage syphilis and 201 disease-free subjects in a control group received free meals, general medical care, the Surgeon General’s signed certificate of appreciation, and a \$50 burial stipend. Even after there was widespread knowledge that penicillin could cure syphilis, only protiodide, iron, and placebos (sugar pills) were given to the study subjects. Painful spinal taps called “back shots” extracted fluid from the men’s spinal cords for neurological testing, with aspirin the only analgesic.

In a simultaneous assault on humanity vastly more extensive in scope, after the Nazis seized power in 1933, German doctors such as Josef Mengele, the Angel of Death, used concentration camp victims as human guinea pigs

in atrocious experiments including freezing, burning, and vivisection. In an effort to accomplish “racial hygiene” to build a master race, there were forced abortions, sterilizations, and euthanasia. Camp inmates deliberately infected with bacteria or malaria had various drugs tested on them to determine effectiveness. In twin studies, if one purposefully infected twin died, the other was often killed with an injection to the heart and used in a comparative autopsy. Hitler’s doctors killed millions, inflicting pain and suffering in the name of science.

After World War II, a second syphilis epidemic occurred in 1947, with 106,000 cases reported in the United States. Public health measures were taken to educate the public on sexually transmitted diseases (STDs), but the 1960s sexual revolution caused an increase in cases. Meanwhile, in 1972 a whistleblower, alarmed that men in the TSS were not offered penicillin, caused the study to stop. Because syphilis can pass through placentas into unborn babies, many of the children had syphilis, and in 1974 the U.S. government paid an out-of-court settlement of \$10 million to the few survivors or the heirs of the diseased.

Not until 1997, however, did the government, through President Clinton, officially apologize to the surviving men and their families. Likewise, six decades after the atrocious Nazi experiments, leading German scientists apologized to Holocaust survivors for pursuing “their scientific goals beyond every moral boundary of humanity.” Public health epidemiologists continue to study syphilis within populations. It gives important data for tracking syphilis around the world and for targeting public education preventive measures, leading to lower rates of infection. Routine STD testing, here and abroad, helps stop widespread infections.

The history of Western medical ethics goes back to 400 B.C. when Hippocrates, the Father of Medicine, promulgated guidelines for ethical medical conduct referred to as the Hippocratic Oath, simply put: “to be useful, but, first, do no harm.” This standard, considered gentlemanly behavior at the time, holds today. Professional ethics became codified in the late eighteenth century when English doctor Thomas Percival published rules for morality and service. His Code was adopted and modified into the American Medical Association Code of Ethics in 1846. Recent revisions emphasize public health education.

The all-important Nuremberg Code (1947) derived from the trial of 23 Nazi research doctors for crimes against humanity. It sharply defines boundar-

ies for moral, ethical, and legal practices in approved medical experiments, speaking to the primacy of human worth over any scientific values, no matter how worthy. The 10 principles of the Nuremberg Code, used worldwide, include: requiring a subject's informed, voluntary consent; showing the proposed research is necessary to benefit society and the subject's risks are not greater than the study's humanitarian importance; requiring it be based on animal studies or justifiable rationale; attempting to avoid a subject's injury or mental and physical suffering; requiring a preliminary investigation of the facts to determine there is no reason to believe death or disability injury will occur, and that the investigators be scientifically qualified; and giving the human subject the right to terminate the experiment if physical or mental conditions warrant it.

Subsequent codifications addressing crimes of science include the Declaration of Geneva (1948), which mentions the importance of maintaining dignity in the art of medicine and avoiding prejudices; and the Declaration of Helsinki (1964), which, as modified in 2000, states "the well-being of the human subject should take precedence over the interest of science and society." Ethics committees, such as Institutional Review Boards (IRBs), must monitor ongoing trials, especially regarding use of placebos, funding details, and conflicts of interest.

Besides IRBs, the U.S. Office of Human Research Protections is charged with overseeing human research volunteers. At present, with technologies rapidly evolving from the Human Genome Project, medical ethics (known as bioethics since 1965) must weigh the benefit to society versus the dangers to individuals. Unfortunately, unconscionable experiment protocols are not a thing of the past, continually challenging IRBs to interpret research data and to apply the ethical principles that protect human subjects.

Synopsis of the Play

Feldshuh's seven-character, two-act play is set mainly in the sparsely furnished Possom Hollow Schoolhouse in rural Macon County near the town of Tuskegee, Alabama. A 1972 Senate subcommittee investigation is ongoing in spotlighted testimony areas. In the prologue Nurse Eunice Evers gives her professional oath of faithfulness, confidentiality, loyalty, and devotion. In act I (1932-Contagion), she talks about her motivation to be a nurse and how she has become a PHS nurse-liaison to four tenant farmers, Hodman, Willie,

Caleb, and Ben, who are variously fidgety, superstitious, and defiant, while being tested for “bad blood.”

Hodman, 37, believes in magic cures like putting a knife under the bed to cut pain. Willie, 19, wants to win a gillee dancing contest and move North. The analytical Caleb, 25, is the most literate. At 57 compliant Ben writes his name with an “X” on the blackboard, but not wanting “to rile nobody,” hastily erases it. Evers gains their trust and entices them into the TSS with promises of hot food and “free doctorin’.” The men are afraid that blood-drawing to see if they were bitten by a “parakeet” (misunderstanding for “spirochete”) will cause impotence. They also suspect the government is lining them up for military induction. But Evers sells the idea of government interest in their welfare and that waiting for testing might be too late, leading to insanity and death. She gives them a ride to the gillee contest, which they enter as Miss Evers’ Boys.

In scenes 2 through 5, the black Dr. Eugene Brodus, a 34-year-old U.S. PHS field physician who is more of a research-oriented medical doctor than a congenial people person, does a trial workup on the four men. He asks Evers to interpret anemia as “low blood”; potency as “hot blood”; and syphilis as “bad blood.” Brodus tries to connect with the men on a musical and dance level. After Evers confirms her boys tested positive for syphilis, they begin a two-year course of treatment with mercury salves and arsenic injections that is 55 percent effective—“if it didn’t kill you first.” They are treated for six months until government money runs out.

The Tuskegee Memorial Hospital administrator, Dr. Douglas, confers with Brodus and Evers, convincing them to keep the federal government’s attention by studying untreated syphilis for six months, to acquire facts to differentiate the disease along racial lines, and to set new PHS priorities for allocating money and offering treatment. Their findings would be compared to a 1909 Oslo study of 300 white syphilitics, with the hope the government would stop saying, “Don’t throw white money after a colored man’s disease.”

The plan, revealed in the play’s exposition, is for Douglas to examine the men periodically, coordinate data, and be the liaison between Washington, D.C., and Macon County. He would be both physician and scientist, an uneasy combination. Their two-year comparison study would require X-rays, drawn blood, and spinal taps for neurological tests, then money would become available for treatment. The men must not suspect protocol change, Douglas warns. Brodus agrees, desiring recognition for Tuskegee, but Evers knows the

men are only getting heat liniment treatment and will infect others. Douglas entices each man to stay in the study with \$50 for a decent burial, and Evers agrees because she believes her boys will be first in line when the new treatment becomes available.

In scene 6 at the schoolhouse, Evers helps Douglas give a searingly painful spinal tap to Caleb, who does not tell the others, fearing they will be deprived of government care. As Evers helps Douglas with the procedure, she recalls that the only job she could get before was housework even though she was a trained nurse. Caleb trusts them to help him get healthy.

Three days later, in scene 7, Evers delivers the spinal tap report to Dr. Brodus, admitting she hated lying to the boys about the taps' importance to their health and that the heat liniment was mercury salve. He rationalizes it is humane to zigzag "round the truth once in a while," and he warns that a medical professional has to step back at times. Evers is offered a job in New York, which she considers because it has become difficult to carry her burden of being both a caring nurse and a detached scientist.

In scene 8, one week later at the schoolhouse, the boys practice for the gillee contest that evening. Evers teaches Ben to write his name on the blackboard, and he tries to convince her they need her. While they wait for the car to arrive to take them to the contest, they talk about how a life insurance policy helped to pay another man's burial costs, but first he was taken to the hospital for an autopsy. The gillee contest is spirited.

In act 2 (1946-Progression), scene 1, the audience learns that penicillin has been introduced as a treatment for syphilis in all but the Tuskegee study group. Evers has been close with the men for 14 years. They seem pain free and appear healthy. But such a hidden, unpredictable disease can catch you by surprise. Besides, treatment is dangerous and no money is available. Then came the silver bullet, penicillin, which offered a cure for her men, who were to be first in line. But Willie's legs give way. The rest are concerned about him and their gillee group. They demand some "new doctorin'." Drs. Brodus and Douglas tell Evers her boys are too far gone for penicillin to help, and, in fact, it might kill them with the Herxheimer allergic reaction; or, if penicillin kills the spirochete embedded in a heart muscle, it could cause the heart to disintegrate—or to explode.

In scenes 2 and 3, Evers finds Caleb and Willie waiting in a Birmingham center to get a penicillin hip shot, but she talks Willie out of it, telling him

he's a government patient and, besides, the shot (mold) could kill him. Later Brodus and Douglas examine him, revealing a "slight slurring" of his right foot, indicating progressive syphilis, but he feels special, like he's "riding in the front of the train." Evers privately urges the doctors to tell Willie about possible treatment so he can choose the consequences, but they accuse her of unprofessional behavior and too much patient attachment. Douglas says penicillin is a small risk to Willie, but there is greater danger because if he gets it and dies anyway, then all 6,000 untreated syphilitics in the county will resist treatment and spread the disease. Brodus stresses to Evers that continuing the study is a chance to do something special, pushing "past the hate, past the idea of difference." Willie comes back to the room and apologetically asks them if he needs new "doctorin'." Brodus' half-truth response is that new research science will not help every single person, but "more people are helped than hurt." Evers offers him hope, and that day the U.S. government gives each study participant a certificate of appreciation and \$14, one for each year.

In scene 4, outside the schoolhouse, the superstitious Hodman tries an old May tea and moonlight cure on Willie. But Caleb knows that all over the county penicillin is the new cure. Douglas convinces Brodus he will never get future funding if he wavers in this study, but Brodus says the equality of penicillin's response to the disease on whites and blacks has already been proved. Douglas argues they need to foster a sense of fear in order to get more money to eradicate the disease and sacrificing 600 men versus treating 6,000 or more is at stake. But to Evers these men are her friends and neighbors, and her doubts multiply.

In scene 5 at the schoolhouse three months later, Caleb tells Evers penicillin has helped him but the moon cure has not helped Willie. Evers repeats that the government will not let her give Willie penicillin, but she must stay there to help her people. Caleb invites Evers to go with him but then leaves, saying he must use his brain and mouth.

In scene 6, four months later at Memorial Hospital, Ben is in a wheelchair getting breathing instructions. Evers offers him \$50 for burial if he'll sign an autopsy permission, but he resists, thinking he will look cut up in his open casket. She convinces him it is okay, and that he is part of something important and lasting after he passes. His government certificate is very important to him. He has been practicing for 14 years and signs his name "Ben Washington." He thanks Evers for caring for him and for doing all she could to make him well.

Besides, he loved riding in the government car. As a nurse she was following the doctors' orders, she told him, and cries remorsefully when Ben tells her he knows she will always do right by him.

In scene 7, two months later, Dr. Brodus tells Dr. Douglas penicillin would be too late, but Brodus argues it has helped others no matter what stage they're in. Douglas says they are different as study subjects because 14 years of work cannot be invalidated and patients sacrificed with a possibly useless or lethal injection. To match the Oslo study, they need to take it to the end point by validating the facts by autopsy. He rationalizes only the best study possible will "unravel the secrets of this disease" and honor the men's sacrifices "for something greater than they'll ever understand."

Ben dies a painful death but looks peaceful in his coffin, as Evers promised. She repeats her nurse's oath before God "not to harm my patients." Dr. Douglas orders Evers to call every doctor in the Tuskegee area and tell them they are not to treat study participants with penicillin. Evers begins cracking from carrying too heavy a burden, but Dr. Brodus convinces her they each serve their race in different ways and have trade-offs. In scene 8, two days later, Evers gives penicillin to Hodman, whose eyes are being affected by the disease. Having gone insane, he drinks poison and dies. Evers wonders if the penicillin had given him Herxheimer reaction from which he died. She gives Willie hip shots as well.

In the 1972 epilogue, the Senate committee hears the evidence. A whistleblower informed newspapers the subjects were human guinea pigs watched to see what bad blood would do. Willie received a course of penicillin out of the county and partly recovered. Caleb also left, was treated, and recovered. Evers told the men the disease "had three parts: you get it, you forget it, and then you regret it 20 years later when it comes back to haunt you." And that is how it was with her study participation as well. She continues reporting on the remaining subjects. Caleb uses his certificate of appreciation as evidence to sue the government that was callously watching him die. Douglas rationalizes that the study proved blacks and whites were affected the same, but Brodus counters they were not given a choice. And what about Nurse Evers who pulled Willie out of the treatment line in Birmingham? She loved her boys but, bluntly put, got some of them buried.

In the end, Feldshuh tells us that Evers, even with her tarnished nursing ideals, was left with "little blame" compared to the government and its doctors who held "the big blame."

Literary Analysis

David Feldshuh's *Miss Evers' Boys* derived from James H. Jones' *Bad Blood: The Tuskegee Syphilis Experiment* as well as from medical articles, 1930s Alabama field interviews, and Senate testimony. In two acts set in the Possom Hollow School House outside of the town of Tuskegee, Alabama, the play fictionally portrays how the U.S. Public Health Service (PHS) experimented on a group of black men. This analysis focuses on how the play highlights important ethical questions about human rights in scientific research. PHS venereal disease doctors set up the Tuskegee Syphilis Study (TSS) to find better ways to treat poor syphilitic southern blacks. Presuming there would be great value in studying syphilis in different races, they were eager to compare their results with the 1909 Oslo study analyzing autopsies of white males with untreated syphilis.

In an unprecedented partnership, trained black medical staff worked alongside white medical professionals who thought their subjects could not understand the research and would not consent to it without enticements. Throughout the play the nurse liaison, Miss Eunice Evers, who was assigned to foster trust and cooperation, gives us her views on the nontherapeutic study and on her two doctors, U.S. PHS Dr. Eugene Brodus and Tuskegee Memorial Hospital head Dr. John Douglas, the only white character. The action begins in 1932 before penicillin was widely used, and it ends in 1972 after a public health whistleblower closed the study down 25 years after the Nuremberg Code systematized the legal concept of informed consent. Although the 1947 Nuremberg Code requires stoppage once harmful situations are ascertained, some say a complicit PHS, which lacked a master protocol and was severely underfunded, rationalized its good intentions. In its defense, Evers reminds us, it was a different time.

Evers, a pivotal character in Feldshuh's play, speaks intermittently to the 1972 Senate subcommittee investigators, in scenes set up as testimony areas, to give us a retrospective sense of the time period. Watching her father die from untreatable pneumonia motivated her to become a nurse, and she takes her professional oath seriously. Evers has sworn to maintain high standards by practicing faithfully, confidentially, and without administering harmful medicine. Her true dilemma comes with the second part of the oath, finding it impossible to be both loyal to her physicians' work and devoted to her patients' welfare. Incredibly, the study is set up so that Evers' duties simultaneously require her to be both a compassionate nurse who translates doctor-speak and

a detached scientist who withholds lifesaving medicine, a duplicity that cannot be rectified ethically. In addition, she abridges the “boys” ability to voluntarily consent by enticing them into the study with incentives of free meals, health care, and a \$50 death benefit, affording the rare opportunity for a dignified burial. Although the 1947 Nuremberg Code’s standard informed consent rules were not in effect, Evers withholds a great deal of information to gain their trust. For example, when therapeutic mercury and arsenic treatment is stopped after six months due to lack of funds, she does not tell them the study is continuing on them as untreated syphilitics. Instead, they are promised, when effective treatment comes, they will be the first in line to get it.

Drs. Brodus and Douglas have slightly different motivations for continuing the TSS. Douglas wants to differentiate racial response to syphilis, believing the humanitarian importance of the research to society outweighs the gravity of the subjects’ deaths. He also wants to keep the fear level high so that more government funds will be forthcoming. Brodus initially wants to stop the study once penicillin has been proved a silver bullet cure, but then he compromises his integrity by going along with Douglas. Neither medical professional seems to be able to perceive the difference between his doctor and scientist duties. Instead, they both rely on the Oslo study that gave them reason to believe first disability and then death would occur in the study group.

What is most unconscionable, however, is that the PHS medical professionals watched the men unnecessarily suffer unbelievable mental and physical pain. For this reason, as the study progressed into the 14th year, lying to her boys became a burden for Evers, especially when their suspicions caused them to demand “new doctorin’.” In the end, Ben, the oldest, acquiesced to the study’s protocol and died, proud that he had earned a government certificate and a proper burial. The superstitious Hodman went mad, drank a magic potion, and died from the poison. Caleb, the most literate, learned about penicillin and was treated in time. Evers took dancing Willie, the youngest, out of a treatment line, convinced by Douglas that penicillin in Willie’s late-stage syphilis, with improbability of cure, might set off an allergic reaction or kill off spirochetes, causing his heart to explode. He suffered the crippling effects of the disease. Today, with a known cure available, it would be considered a heinous bioethical injustice not to give participants the choice to terminate the study.

Even with the subjects’ progressive physical and mental syphilitic signs,

the doctors continued the delusion to keep the study viable for comparison with Oslo's. In the end, the charade continued. The doctors rationalized that if the study participants were given penicillin but died, then the thousands of untreated syphilitics in the country would refuse treatment. The doctors convinced Evers that her part in the study is a chance to do something special.

The study went beyond the period of a known cure and a proven equality in black-white response because Douglas believed extending the fear would get more government money to eradicate the disease. He rationalized sacrificing the few for the greater good and argued against invalidating 14 years of work. Taking their study "to the end point" meant to autopsy, and he ordered Evers to advise all Tuskegee doctors to refuse treatment to study participants. Ironically, once penicillin was found to successfully treat syphilis, it made the study marginally relevant. The big issue is that Evers' boys, mostly illiterate men who did not read the news, were lied to. They were told that diagnostic spinal taps were therapeutic, and that penicillin could kill them. The enticements of food and medicine negated any possibility of voluntary consent. Evers' burden is heavy especially because she watched two of her friends, the study's human guinea pigs, suffer end-stage syphilis and die. She is left guilt-ridden, reflecting on the nursing ideals that had guided her life.

By 1947, 14 years after the TSS started, in a parallel world Nazi doctors were on trial for research crimes on humans. Like Nuremberg, a legacy of distrust follows the TSS, especially the rumor that participants were intentionally infected with syphilis, promulgating notions of genocide. TSS folklore—scientific fervor taking precedence over basic human rights—passed down through generations explains the distrust of white medicine, creating a healthcare gap. In 2011 a new government initiative, Eliminating Racial and Ethnic Disparities in Health, helps to end the practice of lower minority medical standards in six priority areas. They are infant mortality, cancer screening and management, cardiovascular disease, diabetes, adult and child immunization, and HIV infection, which in 1997, the National Minority AIDS Council reported, infected one in 50 black men. The catch-22 is that it is difficult to obtain more black subjects in clinical trials with such an engrained legacy of distrust, including the notion that the statistics are a hoax.

More than 30 years later, what lessons have we learned from the TSS, a metaphor for research abuse? To begin with, it is necessary for studies to apply a careful definition of voluntary, informed consent and to have specific

institutional review boards monitor research protocol to preserve the rights of human subjects. Furthermore, scientists devising study protocols must guard against believing subjects in a particularly vulnerable group are inherently inferior, and they must be wary of putting too great a significance in the biological and social difference in race. And, lastly, researchers must see their study participants as people like themselves.

While it may be shocking to hear, bad ethics in the TSS (as in the Nazi experiments) did not necessarily equal bad science, although the issue of trust permeates the results. The fact is that medicine still relies on the 40-year TSS as a valuable source of information on diagnosing and treating syphilis. Clearly, in teaching this medical history on the potential for immorality in research methods, a cautionary bioethical lesson should be taught along with scientific results.

Topics for Oral and Written Discussion

- What did the legacy of the Jim Crow Era contribute to the Tuskegee Syphilis Study and how specifically did the Civil Rights Act of 1964 change the potential for racial segregation and discrimination?
- How did British bacteriologist Alexander Fleming's 1929 accidental discovery of penicillin influence the history of syphilis?
- Define syphilis and describe its early treatments. What do the terms "bad blood" and "back shots" mean?
- Is Nurse Evers a traitor for using powerful incentives to entice her subjects into the trial?
- In what way has the TSS's legacy of distrust permeated the black community, and how did President Clinton attempt to regain trust?
- What is the U.S. Public Health Service and how do their epidemiologists educate the public?
- What are Institutional Review Boards (IRBs) and upon what code(s) do they base their human research protocols?
- Describe the ethical principles that would make it illegal and unconscionable today for PHS doctors to engage in subterfuge in order to entice participants into a study.
- How do you divide PHS blame in the TSS among Evers, Douglas, and Brodus?

- What specific tenets of the Nuremberg Code did the TSS violate after 1947?

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Chapter Four

Illness and Culture: An Analysis of Ken Kesey's *One Flew Over the Cuckoo's Nest* and Alice Walker's *Possessing the Secret of Joy*

Introduction

Ken Kesey's *One Flew Over the Cuckoo's Nest* embodies the rebellious energy of the psychedelic 1960s, a prosperous time following World War II when drugs were rampant and the counterculture challenged authority. A classic description of mental illness, *Cuckoo's Nest* encapsulates Kesey's experimentation with alternative forms of perception, while highlighting ethical issues.

The setting is a mental institution where a power struggle exists between the staff and the patients afflicted with many types of mental illness. Paradoxically, reading this important novel feels liberating while it asks the disturbing question: Who among us is completely sane?

The United States has gone through a slow and arduous process to learn how to identify and to treat mental disorders. Finally, in 1946 the National Institute of Mental Health was created, recognizing the need to diagnose and to help the mentally ill. With the advent of mental institutions came radical therapies such as electroshock treatment and lobotomy. Today these controversial approaches are often replaced by psychotherapy, the so-called talking cure, and by drug regimens. With today's brain scans and DNA analysis some mental disorders are more readily detected and easily treated. Other topics *Cuckoo's Nest* develops concern sexuality and institutionalization; humor and illness; nursing and group therapy; and psychiatry and surgery.

Kesey's *Cuckoo's Nest* continues to influence twenty-first century medical issues and ethics as does Walker's *Possessing* by describing the cultural origins of mental illness. The female genital mutilation (FGM) ritual Walker describes in a certain African culture illustrates how society constructs practices that

inflict psychological trauma and have long-term physical consequences. FGM, viewed as sane in one culture, is judged unethical and criminally insane in others, linking health and human rights. Increasing immigration brings the surgical ritual, once commonplace in Puritan times, back to the United States. In addition, worldwide awareness causes petitioners seeking asylum based on sexual discrimination to flock to the United States.

Possessing the Secret of Joy also teaches morality lessons and shows the importance of the mother-child relationship all within the context of cultural relativism and Social Darwinism. The main issue, however, of global concern is how human rights violations perpetuate women's mental and physical health problems. In the Western world the long history in which women were seen as objects springs from Aristotle's view that women were unfinished men. This thinking was at the heart of early Greek medical practices such as female circumcision, just as, ironically, was Hippocrates' "first, to do no harm" mandate. Many cultures continue to subjugate women to fundamentalist beliefs, denying them equal protection under the law, even though the United Nations Universal Declaration of Human Rights states that human rights are inalienable: "No one shall be subjected to torture or to cruel, inhuman or degrading treatment or punishment" (United Nations General Assembly Resolution, 1948).

Both Kesey and Walker show how illness derives from culture as well as from disease and that our views on normalcy depend on the culture and the time in which we live. While *Possessing the Secret of Joy* projects issues that for some may be difficult to explore at first, by putting a face onto the estimated 150 million women worldwide who have undergone FGM, Walker has crafted a book of literary importance.

KEN KESEY'S
ONE FLEW OVER THE CUCKOO'S NEST (1962)

The ward door opened, and the black boys wheeled in this gurney with a chart at the bottom that said in heavy black letters, MCMURPHY, RANDLE P. POST-OPERATIVE. And below this was written in ink, LOBOTOMY.

—Ken Kesey, *One Flew Over the Cuckoo's Nest*

Historical Context

Ken Kesey (1935-2001), born in Colorado and reared in Oregon, appreciated nature and loved wrestling. He received a degree in speech and communication from the University of Oregon. Then, with a Woodrow Wilson Scholarship, he enrolled in the Stanford University Creative Writing program. While a graduate student, he participated in life-altering psychology department research involving psilocybin, mescaline, amphetamine, and LSD. For several weeks Kesey, a 24-year old paid research subject, ingested these mind-expanding drugs. Later, as a Veterans Administration psychiatric ward orderly on the night shift, he observed that many of the patients, rather than being crazy, were just nonconformists in a sterile environment. While drug-induced, Kesey hallucinated about an Indian sweeping the floors, who became Chief Broom, his schizophrenic narrator in *One Flew Over the Cuckoo's Nest*.

His novel was an immediate success, allowing Kesey and his wife Faye to buy a farm that became a site for an influential bohemian community experimenting with drugs, believing altered mental states could improve society. Because Kesey's parties were notorious for illegal drug use, he was soon arrested and jailed for several months. Nonetheless, with his new fame, Kesey drew the attention of Neal Cassady (hero of Jack Kerouac's *On the Road*) and others, and soon the hippie-aesthetic, antiwar group the Merry Pranksters was formed, exploding into the psychedelic era.

In 1964 the notorious Pranksters drove cross-country in a Day-Glo bus, ostensibly to see the New York World's Fair, but it became instead a creative adventure. Cassady drove the bus, and its riders dropped acid and smoked marijuana along the journey, which was filmed for posterity. The bus became a metaphor for "living your art," and the saying, "You're either on the bus or you're off the bus," was Beat Generation lingo for creative tripping.

Kesey wrote other novels, but none achieved the success of *Cuckoo's Nest*, which subsequently influenced popular culture with its stage and film productions. Late in life, Kesey, the pied piper of the psychedelic era, took drugs only for his diabetes and hepatitis C, finding the pure adrenaline of experiencing nature enough. He died November 10, 2001, in Pleasant Hill, Oregon, following surgery for liver cancer.

Cuckoo's Nest continues to be a prototypical depiction of mental illness by describing various mental disabilities as well as the legal and ethical issues arising from them. The novel's publication brought to the American consciousness what a slow and arduous process it has been to define and to devise treatment for mental disorders. In Colonial times, before the proper diagnosis of the mentally ill and retarded, madmen roamed free. Alternatively, shamed families cruelly locked abnormal relatives in an attic or chained them to a wall. Society's first priority was to feel safe, then to punish the evil they believed inherent in the mentally ill.

The very first mental institutions were small, primitive nontherapeutic holding facilities. Before then, troublesome individuals, including the poor, were incarcerated with criminals or sent to the poorhouse. Over time, demonic causation was challenged, and, instead, the afflicted person's environment, including its morality, was scrutinized. Civil rights laws helped to differentiate criminals from the mentally ill who are often involuntarily committed upon proof they would be a danger to themselves or others.

A shameful past includes the 1920s eugenics movement, a practice of sterilizing the feeble-minded and others with conditions such as alcoholism, promiscuity, epilepsy, and even running away from home. In the 1930s another procedure performed for the greater good was neuropsychiatrist Dr. Walter Freeman's icepick psychosurgery. Also known as lobotomy, it partially destroyed one of the brain's frontal lobes, causing great disfiguration. Psychosurgery relieves suffering—their anxious and fearful personalities—Freeman explains, “without the long, painful process of developing insight in the patients.” Going back to their homes, they can “survive in the very environment in which their disorders developed” (Robinson and Freeman 15). In Freeman's case studies, the postoperative realities sound grim. Patients were described as slothful, irritable, and angry. With the relationship between the brain and the mind being continually studied, the idea of operating on the brain to cure madness seems reasonable. Adverse publicity arising from *Cuckoo's Nest*, how-

ever, caused lobotomy to be largely replaced with antipsychotic drugs, but successful psychosurgeries like cingulotomy relieve severe compulsive neuroses and depression.

The use of electroconvulsive therapy (ECT), which is also called electroshock therapy, is a central theme in *Cuckoo's Nest*. In 1938, after an earlier scientist observed that schizophrenics seemed symptom-free following seizures, Italian scientists Cereletti and Bini devised ECT as a way to manage uncontrollable patients. Today, a severely depressed patient receiving ECT, administered in a series of treatments, has an intravenous relaxant administered and a mouth guard inserted before an anesthetic renders him unconscious. The airway is protected, and electrodes are connected with conducting jelly on the temples. Electric current comparable to a 60-watt bulb shoots through the brain causing a 20-second grand-mal seizure. The patient wakes about 30 minutes later, confused and disoriented, with a headache and short-term memory loss. But complications from possible fractures and dislocations caused by muscle contractions are a thing of the past. In essence, ECT helps disturbed patients regain the control necessary to enter into a therapeutic relationship.

For generations Kesey's *Cuckoo's Nest* inflamed the public consciousness by depicting ECT as a means to punish misbehaving patients, easily associating it with electrocution. Over the years attempts to pass state laws banning ECT have failed. As horrific as it sounds, some neuropsychiatrists still find ECT to be an effective treatment for severely depressed and suicidal patients, especially after psychotherapy and slow-acting, cyclical drug regimens fail.

Depression, more than a character weakness and feeling just down, is a brain disease often detectable on a PET scan that indicates receptor chemistry abnormality. It affects millions of Americans who often feel ashamed they cannot pull themselves up by their bootstraps. Hence, they often fail to seek help. New electromagnetic brain treatments, easily applied and without side effects, are proving effective, and recent NIH DNA studies indicate a 50 percent to 80 percent genetic component. In 2003 scientists, after working decades, documented a clear link between a gene controlling serotonin levels in the brain and depression, leading to possible new drugs. Linking genes with behavior, scientists say depression has roots in both genetics and personal history. For better or worse, drug regimens—even with their side effects—often replace lengthy patient-oriented talk sessions as the standard of care.

These are just a few ways to illuminate specific issues in *Cuckoo's Nest*. As

explained earlier, over the centuries attempts to treat madness have, from our perspective today, seemed cruel and unusual. With pathology poorly defined, odd behavior alone would be cause for confinement. While new methods advance understanding and care, a significant part of the future of mental illness diagnosis may lie in constant revelations arising from brain imaging and the deciphered genome, with the promise of targeted treatments. Nonetheless, even with vast knowledge of the human body, Edward Shorter adds: “Science wanders astray easily in the world of quotidian anxiety and sadness, in the obsessive traits of behavior and the misfiring personality types that are the lot of humankind. Here the genetic trail grows dim and the neurotransmitters evaporate. Biology counts for little, culture and socialization for lots” (*A History of Psychiatry* 288). The nature versus nurture debate is very much alive.

Synopsis of the Novel

An Oregon state mental institution in the 1960s is the scene for a contest of wills between the staff and the inmates. The catatonic Native American Indian Chief (the Big Chief or Chief Broom) narrates *One Flew Over the Cuckoo's Nest* even though he appears deaf and mute. Diagnosed with delusional paranoia, while in a fog and feeling helpless, he fears the Combine controls everything. The driving force in the mental institution is the militaristic Nurse Ratched (the Big Nurse), who wields her authority severely over everyone, including the professional medical staff, the black boy aides, and the patients. The new patient, Randle P. McMurphy (Mack), whom the court ruled a psychopathic prisoner, has feigned insanity to be transferred from Pendleton Work Farm. In his cocky, in-your-face manner, he introduces himself as “a gambling fool” to other asylum inmates. Using his charm, he craftily sets them up as pigeons to pluck in card games.

The patients are divided into the incurable Chronics like the big half-breed Chief, who is a flawed product of the Combine, and the curable Acutes who Nurse Ratched eggs on, attacking them where they are most vulnerable. A patient may come in as an Acute and then be turned into a robotic Chronic (Walker, Wheeler, or Vegetable) after being punished in the Shock Shop with electroshock or psychosurgery. Threats with these therapies enforce cooperation while keeping the two groups separated. Ratched has already assessed Mack as a troublemaker who will manipulate the system and disrupt the ward. She runs a tight ship, shunning outside disturbances to keep the precision asy-

lum machinery (The Combine) humming. Her ideal medical staff, the Chief tells us, has been handpicked and after years of training modeled to suit her needs, staying “in contact on a high-voltage wavelength of hate.” She taught them her way to get inmates into shape was to patiently “wait for a little advantage . . . then twist the rope and keep the pressure steady.”

Through the fog of his schizophrenia the Chief keenly watches the new admission, McMurphy, in the group psychotherapy session. Ratched begins the discussion from a topic logged in the ward book having to do with patient Dale Harding’s promiscuous, well-endowed young wife, his feelings of inferiority, and the resultant sexual dysfunction. He is a probable case of situational madness resulting from his wife’s emasculating nature.

Mack had initially challenged Harding, the effeminate, college-educated president of the Patients’ Council, for the role of the Bull Goose Loony or the Alpha male, but they soon become friendly when Harding proves a valuable source of information. Mack garners the most interest in the meeting, however, when Ratched introduces him as a recipient of the Distinguished Service Cross in Korea for leading a Communist prison camp escape. Subsequently, he was dishonorably discharged for insubordination and later arrested for drunkenness, gambling, assault and battery, and statutory rape. Mack refutes only the latter. Dr. Spivey, the ward doctor, misaddresses him as “Mr. McMurry”—Ratched’s attempt to demoralize Mack by mispronouncing his name—and looks into his file, reading the diagnosis: “repeated outbreaks of passion that suggest the possible diagnosis of psychopath.” In retaliation, Mack tries to intimidate Ratched.

Dr. Spivey explains the group meeting protocol and why a democratic therapeutic community, as a prototype of the outside world, requires conformity that will allow them to return to the outside. The patients in group therapy are encouraged to discuss and confess, revealing the secrets of the subconscious. Rather than being Freud-inspired talk therapy, though, it turns out to be a Ratched-led pecking party, and this time Harding is unmercifully grilled and shamed. Hearing all this and watching an agitated patient receive a subduing hip shot, Mack, in the end, thinks it might be smart to carefully assess the situation before he makes any kind of play. He enters into a lengthy dialogue with Harding and others about Ratched’s role in emasculating them, culminating in a bet that he will “get her goat” within a week.

Mack’s rebellious nature takes over as he begins rallying the patients and

gaining hero status by challenging Ratched's authority and by procuring special favors for them. For example, in the shower room Mack complains to a black orderly about the ward policy that he can brush his teeth at only a certain time, and when Ratched comes in, he tells her his clothes were taken and threatens to drop his towel. Ratched angrily calls for new clothes. Further taunting Ratched, Mack complains about loud ward music overriding his conversation while gambling for cigarettes; however, Ratched says it consoles the hard-of-hearing older patients. Mack then presses to move his game to the old tub room, no longer in use because drugs have replaced hydrotherapy. She refuses, but Mack persuades Dr. Spivey to change the venue. Mack continues to break the rules by using real money, not cigarettes, to play Monopoly. He takes bets on the World Series. In a key vote to watch the World Series, Mack gets the Chief to raise his hand. Ratched balks at the schedule change, and the Acutes do a sit-in protest in front of the TV set. With each loss of authority Ratched patiently, coldly waits: "She has all the power of the Combine behind her."

In Part 2 Ratched is suspicious of the Chief's new cognitive responsiveness, and even though he still exhibits paranoia, his schizophrenic fog may be lifting. In a staff meeting, the question arises whether Mack is a clever con man or a violent psychopath. Ratched convinces others that sending Mack to the Disturbed Ward would only enhance his hero status; therefore, she favors keeping him in the general population where, before long, he will show his own avarice and cowardice. The Chief, in his narration, theorizes Mack truly is an extraordinary man, capable of resisting the Combine. Noting aberrant staff actions, however, he questions who in the mental institution is completely sane. Mack's leadership continues to embolden the Acutes. He has given them a reason to wake up, and they now question ward policies, such as on rationing cigarettes. Then Mack, in a catch-22, backs off when he realizes, as an involuntarily committed patient, that Ratched decides if he is cured or not (released or not). By failing to rally forces against Ratched, he disheartens the other patients, possibly leading to patient Cheswick's suicide. Ward privileges are revoked, and therapy sessions return to silence.

Mack witnesses an epileptic seizure, learning about the side effects of the drug that may prevent it, as well as the staff wielding its power through using ECT ("brain burning"), which, ironically, is actually the induction of a seizure. Mack is shocked to learn that Harding, Billy, and the others who have voluntarily committed themselves, are free to leave at any time. It is only their

fears of the outside world that keep them there. Ratched, feeling her control returned, smugly informs the men that they must have the privilege of using the tub room for card playing taken away as punishment for their insurrections and that having a sense of order and discipline will help them adjust to societal rules in the outside world. Convinced she had the final victory and control over Mack, Ratched is startled to see him plunge his hand through the glass window of the nurses' station, extracting one of his own cigarettes. She does not retaliate but bides her time.

In Part 3 sports are introduced, causing the men to renew their muscle-flexing and to build self-esteem. Being denied day passes, Mack again puts his hand through Ratched's glass window. Tension builds as Mack's rebelliousness increases. At this time, he recruits the patients to go on a supervised deep-sea fishing trip, but Ratched frightens the men. The Chief really wants to go but knows he will blow his cover by indicating so. Acting deaf has allowed him to hear. It started as a child when outside people who saw an American Indian as invisible quit listening to him. When Indian land was seized to make a hydroelectric dam, the government had his white mother, instead of his father, sign the deal. The Chief begins to emerge from his silence one night when Mack offers him some gum, and he replies, "Thank you." A conversation ensues, and Mack works on the Chief's ego to convince him to throw the tub room control panel out of the window for escape.

Mack pushes to arrange a deep-sea fishing trip, signing up the Chief as the only Chronic going. With great effort, because Ratched had tried to "damp the man out of them," Mack gets the quota needed for the trip. But, when only one chaperone shows up, the prostitute Candy Starr, Dr. Spivey must step forward as the second chaperone. All the way to the dock, the men show bravado and courage, and instinctively manliness once derailed returns. They surpass many obstacles on their road trip to the sea; in the end, without a properly signed waiver, they even hijack a boat. The fishing trip, complete with victorious fishing and hearty camaraderie, has returned a natural masculinity to formerly emasculated men. The laughter "started slow and pumped itself full, swelling the men bigger and bigger." Mack watches as the men appear to slowly take back their lives. Billy and Candy become smitten, and Mack invites her to the mental institution on Saturday.

At the mental institution in Part 4, Ratched plots to discredit Mack by disclosing to the patients how much money he is making on them from gam-

bling and arranging games and trips. Her ploy seems to be working, until Mack and the Chief defend George Sorenson in a fistfight with the black orderlies. As punishment, they receive ECT in the Disturbed Ward, which Mack compares to electrocution. Because he will not relent, but rather acts heroically, Ratched orders more ECT for Mack. When he begins to attain legendary status, Ratched brings him back to her ward where she works on making him appear weak.

Still rebellious, Mack arranges for Billy to lose his virginity to Candy during a drunken night on the ward. The other patients urge Mack to escape, rather than face further repercussion from Ratched. But, drugged and drunk, he falls asleep. In the morning, Ratched takes it all in and threatens to tell Billy's mother about his encounter with Candy. After Billy cuts his own throat, Mack attacks Ratched. In retaliation, she has him lobotomized. The Chief humanely releases Mack from his vegetative state by suffocating him, and then escapes back out into his life.

Literary Analysis

One Flew Over the Cuckoo's Nest, one of the most influential novels of the twentieth century, derives from Ken Kesey's observations at a mental institution. Although it is a popular myth that *Cuckoo's Nest* sprung full-blown from Kesey's drug-induced state, he admits only some of it was inspired that way. Written during the post-World War II era of the psychedelic 1960s, when the U.S. faced a Communist threat, he wanted his black satire's good versus evil plot, rich with symbols, literary allusions, and bioethical and medical issues, to show how individuals must stand up to authority so their rights are not quashed by government control. As a prototypical depiction of mental illness, *Cuckoo's Nest* describes how the mentally ill were treated, and this analysis focuses on the effects of the therapies applied at the time.

The Chief's observations as narrator make him the most important character in the novel. The "deaf and dumb" American Indian, who has seen his lands taken away to build a hydroelectric dam and his family destroyed, tells the story, at first in a flashback sequence and then in hallucinatory visions. It is possible to trace throughout the novel his passage out of the fog of schizophrenia. The action centers on the free-spirited Randle P. McMurphy (Mack), who personifies the counterculture Beat Generation. He "was a giant come out of the sky to save us from the Combine," the Chief believes. Mack

faces off against Nurse Ratched, who personifies governmental authority and repression and in whom The Combine (evil government forces seeking conformity) culminates.

The Combine includes Ratched's network of hand-picked and personally trained nurses, doctors, and aides. Mack, "crazy like a fox," has capitalist intent in feigning mental illness to leave a prison work farm. However much of a con man he appears to be, though, in setting up gambling opportunities, his antiauthoritarian rebelliousness makes him an imperfect antihero. Because he has been involuntarily committed by the prison, Ratched has absolute power to hold him until she deems him cured. But most of the other Acute patients who are deemed hardcore and seek institutional discipline can release themselves. In his battle with his nemesis, Nurse Ratched (symbolically a ratchet, a tool controlling by degree), he appears to be both a classic psychopath and a cocky comic book figure. Regardless of the impurity of Mack's self-serving hustling instincts, his antagonizing Ratched allows him to grow and the other patients to be liberated. Considering the complexity of mental states, it is ambiguous whether he extended his stay (breaking the nurses' station window twice) for his greed or for solidarity with patients. Is he the victim of an ill-conceived plan or a martyr?

While Mack "walks out of step; hears another drum," a literary reference to Henry David Thoreau that is a leitmotif symbolizing individualism, the Chief stands for the vanishing American Indian, an invisible man diminished by white society. Kesey goes into great detail about how the Chief's disintegrating culture has paralyzed him into catatonia, effecting a split personality and sporadic loss of reality. The Chief has been on the ward the longest; Mac is the new patient. Each is putting on an act: the Chief's hallucinatory insights on hospital activities reflect his silent savvy; Mack's noisy bravado either agitates or rallies patients by challenging Ratched's matriarchal authority. Contrasting the Chief and Mack is interesting, with the ingenious part of the novel having the ability to trace Mack's influence on the Chief. Inextricably linking mental prowess and physical size, the Chief in his mind's eye appears to grow physically bigger as he becomes mentally released from his schizophrenic fog. In an example of the complexity of Mack's motives, he uses the Chief to lift the control room panel as the basis of a bet, but at the same time it empowers the Chief.

The mental institution culture in *Cuckoo's Nest* reveals how the lines be-

tween sanity and insanity are often blurred. It describes many types of illness, divided between the Acutes and the Chronics, and includes the obsessive-compulsive disorder (OCD) patient who cannot get dirty, two epileptics with opposing drug administration problems, cowering depressives, self-mutilating passive-aggressives, hallucinating schizophrenics, and troublemaking psychopaths. In a group therapy meeting Mack sets out to challenge authority by persuading most of the patients to vote to watch the World Series during their work detail. Although a democratic vote is taken—modeling the type of behavior needed on the outside—Ratched wields her authority and cuts the power to the set. The patients then gather in front of it in a rebellious sit-in. The Chief tacitly observes they would all appear crazy to an outsider. Talk therapies based on ward log entries are run like confrontational pecking parties, with the patients acting like scared rabbits. Harding and others both fear Ratched, viewed as a surrogate wife and mother, and want her to keep them in their place. Throughout the novel women are mostly portrayed as dominating “ballcutters” or submissive pleasure-givers.

Dale Harding, symbolizing the voice of reason as president of the Patients’ Council, explains the system and treatments like ECT and lobotomy. What may be inexplicable, though, are the therapeutic roles of nature and the healing power of laughter seen throughout the novel. In a classic road literature scenario, Mack and the other patients on a fishing trip learn and grow along the way as they face challenges and overcome obstacles. Mack laughs at fishing trip mishaps, the Chief tells us:

Because he knows you have to laugh at the things that hurt you just to keep yourself in balance, just to keep the world from running you plumb crazy. He knows there’s a painful side; he knows my thumb smarts and his girlfriend has a bruised breast and the doctor is losing his glasses, but he won’t let the pain blot out the humor no more’n he’ll let the humor blot out the pain.

The contagious laughter pumped the men up, as it “rang out on the water in ever-widening circles.” Laughter, as a proponent of the mind-body-spirit approach to health and healing, may relieve pain and renew hope. As referenced in the literature of alternative therapies, it gives back control to life.

Mack’s therapeutic role—if it can be called such—demonstrates the im-

portance of levity as well as of maintaining some self-respect in institutional living. Unfortunately, in *Ratched's* therapeutic community her dehumanizing ways belittle all men, including Dr. Spivey. Contrary to today's conventional wisdom, she controls the population by diminishing the men's self-esteem. She also administers drugs daily. Her threats of using electroshock therapy and lobotomy as punishment would now be seen as unethical, at the least. Mack progressively builds up the men's masculine confidence. But then he lets them down, until in one last hurrah he puts his personal interests aside when he and the Chief protect George in a fistfight with the black aides who try to give him an enema. Although *Ratched* gives Mack a chance to get out of ECT as punishment by admitting he has been wrong, in a pivotal show of selfless solidarity, he refuses, feeling it would be the same as confessing to a "plot to overthrow the government." As he undergoes a series of ECT in the Disturbed Ward, his bravado creates a heroic legendary status that *Ratched* fears. In a psychological ploy to regain control, she brings him back to the ward where she can watch him—and plot.

Sexuality is a part of life—even in an institution. Mack arranges for Billy Bibbit, 31 but mentally an adolescent controlled by his mother, to lose his virginity to a smuggled-in prostitute during a drunken evening on the ward. Mack's attempt to restore a manly independence in the men may release some from psychosomatic illness; however, for Billy, things are not that simple. *Ratched*, in her zeal to keep things under control, shames him into extreme guilt. Fearful of his mother, he commits suicide. At this point, Kesey fills *Cuckoo Nest's* with rich literary references to Melville's *Billy Budd's* in a suggestion of the stuttering, innocent protagonist, as well as imbuing it with the good versus evil overtones in *Moby Dick*.

Applying Darwinian reasoning to the pecking order of the mental ward, *Ratched's* "ballcutting" approach mandates that only the fittest survive. So Mack viciously attacks *Ratched* for Billy's suicide, leading to her final retaliation: his lobotomy. What makes Kesey's dramatization so compelling, however, is the way Christian imagery used throughout the novel coalesces into his final redemption: Mack is the martyred Christ who has compromised authority and released the patients from The Combine's control of them. In fact, *Cuckoo's Nest's* grotesque description is so compelling it took lobotomy as therapeutic psychosurgery underground.

In the end, the Chief's releasing Mack from his vegetative state and es-

caping out into a new life show the healing power of individuals. Nonetheless, life is messy, and Kesey's ambiguous conclusion causes speculation that The Combine, bigger than Nurse Ratched and her mental institution, cannot be so easily defeated.

The allegorical title, *One Flew Over the Cuckoo's Nest*, comes from a nursery rhyme the Chief recites in Part 4:

Ting. Tingle, tingle, tremble toes, she's a good fisherman, catches
hens, puts 'em inna pens . . . wire blier, limber lock, three geese inna
flock . . . one flew east, one flew west, one flew over the cuckoo's
nest . . . O-U-T spells out . . . goose swoops down and plucks *you*
out.

The cuckoo's nest is the mental hospital; Ratched "tremble toes" pecks at the men; the Bull Goose Loony Mack "plucks out" the Chief, who embodies Mack's spirit as he makes his hopeful escape into the moonlight.

Kesey's cautionary tale, a metaphor for how society socially constructs its attitudes toward mental illness, makes us question, conversely, how mental illness derives from culture as well as from disease. What is more clearly understood, however, is that views of insanity change generationally in our culture, and that therapies go in and out of fashion. We are left to wonder how we should balance mental healthcare's need to control and conform with maintaining individual rights. In Kesey's novel, the psychiatric staff are not always the good guys, and the patients are often more complicated than they first appear. It makes it necessary to ask, by whose idea of normal should we be measured?

Topics for Oral and Written Discussion

- What role did the rebellious Merry Pranksters have in defining the counterculture into which *Cuckoo's Nest* is set?
- What psychological characteristics make the Chief an effective narrator?
- How does the individual versus the Combine encapsulate the book's conflict?
- Through scene analysis define incidents of insanity as well as gender and racial bias.

- How is the fishing trip therapeutic for the patients?
- As seen through the eyes of the Chief, whose mental illness may derive from a cultural schism, relate Christian imagery to Mack as he goes from maverick to self-sacrificing saint.
- Describe Ratched's ward in totalitarian terms, incorporating a discussion of her authoritarian ways and the patients' loss of civil liberties.
- Discuss the psychological effect of domineering women in *Cuckoo's Nest*.
- As described in *Cuckoo's Nest*, would the ECT and lobotomy administered as therapy and/or punishment be ethical now?
- Throughout the novel, trace Mack's influence on the Chief's passage out of the fog of schizophrenia.

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ALICE WALKER'S *POSSESSING THE SECRET OF JOY* (1992)

There are those who believe Black people possess the secret of joy and that it is this that will sustain them through any spiritual or moral or physical devastation.

—Alice Walker, *Possessing the Secret of Joy*

Historical Context

While Kesey's *One Flew Over the Cuckoo's Nest* and Walker's *Possessing the Secret of Joy* are both cultural representations of mental and physical illnesses, they are as diverse in time, setting, and characterization as the backgrounds of their authors. Alice Walker (b. 1944), the first black woman to win both the Pulitzer Prize and the American Book Award, for *The Color Purple* (1983), was born in Eatonton, Georgia, the last child of eight to poor sharecropper parents. Her mother's grandmother was mostly Cherokee Indian. At the age of nine, Walker was blinded in the right eye with a BB gun pellet and facially disfigured while playing cowboys and Indians with her brothers. She retreated into books.

Walker excelled despite the partial loss of eyesight, and at her high school graduation in 1961 she was valedictorian and prom queen. She received a scholarship at Spelman College in Atlanta, Georgia, but before she left her mother wisely gave her three gifts: "a sewing machine for self-sufficiency, a suitcase for independence, and a typewriter for creativity." While in Atlanta, Dr. Martin Luther King, Jr. invited her to his home, and later Walker attended the Youth World Peace Festival in Helsinki, Finland. These two events immersed her in the Civil Rights Movement and gave her greater understanding of other cultures. In 1963 Walker took part in the March on Washington for Jobs and Freedom where she heard Dr. King's "I Have a Dream" speech.

After two years at Spelman, Walker received a scholarship to attend the

prestigious Sarah Lawrence College in Bronxville, New York. During her senior year she became pregnant and consequently suffered from suicidal thoughts and depression. She pored her feelings out into poetry and a short story, "To Hell with Dying," which was published with the endorsement of the famous poet Langston Hughes. With the help of classmates, Walker arranged to safely abort the pregnancy, which was illegal at the time. Following college graduation in 1965, Walker increased her civil rights activism by the door-to-door registering of poor voters in Georgia. She married Mel Leventhal, a Jewish law student in New York City, who later worked for the NAACP. They moved to Mississippi where threats of violence tested their interracial marriage. Walker became pregnant again, but lost the baby during the frenetic time following King's assassination. She later delivered a healthy daughter. After receiving a number of grants and fellowships, Walker taught at Wellesley College, one of the colleges that in the nineteenth century championed women's rights (a movement born out of abolition), including voting and property rights, education, and health reform. While there, Walker created one of the first women's studies courses. In the mid-1970s she divorced Leventhal.

After Walker finished her most famous work, *The Color Purple*, she traveled to Africa to research the oppressive practice of female genital mutilation (FGM), which also occurs in the Middle East and in part of the Western Hemisphere. Her work turned into *Possessing the Secret of Joy*, which focuses on one woman's traumatic experience with FGM. Later with collaborator Pratibha Parmar she filmed a documentary with a companion book, *Warrior Marks* (1993). Walker draws from a deep reservoir of personal experiences to write realistically about many issues in her novels and poetry. For instance, she cares very much about poverty, racism, and the health issues that emanate from global violence against women. Her works dramatize the oppression of women, in particular, and lately have addressed bisexual and father-daughter relationships. As a former teacher, she hopes to educate her readers on the brutality of misogyny; the dangers of silent taboos; and the effects of rituals. Her activism, which started during her college days at Spelman, now addresses other causes such as protecting indigenous cultures in their natural environments. Walker, a California resident, continues to write and to lecture.

The main topic Walker addresses in *Possessing* is how the female genital mutilation ritual in a specific African tribe affects the mind, body, and spirit of its bicultural protagonist, her family, and her countries. It is important to note

that Walker's literary representation of FGM applies to only a small percentage of African tribes, and that the surgical ritual is conducted in many different ways, in hospitals as well as in huts, for many different reasons. For these purposes, the procedure is more descriptively called female genital cutting (FGC) because, by degree, it ranges from a slight ceremonial nicking of the clitoris to draw blood to the more radical excision (removing some or all of the outer genitals) and infibulation (sewing up the vagina and leaving a small opening for urination and menstrual flow). The ritual's end result spans the gamut from a proud youth who has experienced a spiritual initiation into adulthood and elevated tribal status to a scared young girl's agonizing pain and lingering death. A woman who has had the more radical procedure often has very painful intercourse and child delivery. Even the newborn may be harmed mentally and physically from passing through the narrow opening. After childbirth, the woman is reinfibulated, or sewn back up.

The origin of FGC goes back as far as Aristotle's thinking that women were unfinished men; consequently, the malformed and unclean female parts needed altering. It is believed Queen Cleopatra of Egypt had undergone pharaonic circumcision to, theoretically, ensure a union that could extend her realm's interests. Historically, only a virgin who could protect the paternal bloodline was marriageable, and therefore FGC (euphemistically "having a bath" or "cutting the rose") effected a sort of chastity belt. Those who show cowardice ("crying the knife") are socially ostracized. The girls, who sometimes describe their experience as spiritual ecstasy, prove their bravery by transcending physical pain and have more control over their tribal lives. It became a mother's duty to keep her daughter pure until marriage, and therefore a prospective bride's excised and infibulated vagina became aesthetically desirable. In addition, a desexed girl was more likely to keep chaste until and during marriage. Thus, African mothers who force FGC on their daughters help maintain their status and that of their daughters'. In a few tribes, the tradition includes boys who vie for leadership by a test of their courage. They must be stoic while, without anesthesia, their penises are circumcised and ritually mutilated.

Anthropologists and missionaries have known about FGC for many centuries. Christian missionaries were trying to eradicate FGC in Africa at the same time Puritan moralists in America believed clitoridectomy was a necessary surgery to control nymphomania and masturbation and to cure hysteria and melancholia. While some argue that there is no sound medical reason for

male circumcision, in the Western world and elsewhere it is still done both for hygienic purposes and as a powerful religious ritual. However, for males, circumcision (the removal of the foreskin) is relatively trivial—unless it goes awry—compared to its female counterpart (clitoridectomy, at its worst), in which sexual pleasure is replaced by pain.

Putting FGC into a cultural context is helpful. Historically, menstruation and menopause myths declaring women unclean or undesirable, respectively, have mandated isolation and subjugation. Ancient Chinese foot binding hobbled women into a helpless desirability, while recent headlines report female infanticide where sons are desirable. Whether these practices are considered heinous or not is a matter of perspective, though, since to many around the world the American death penalty (an ancient form of justice stemming from “an eye for an eye”) is considered barbaric.

FGC was brought to the popular consciousness in a 1980 *Ms. Magazine* article by Gloria Steinem and Robin Morgan titled “The International Crime of Genital Mutilation.” Later Representative Patricia Schroeder of Colorado shocked Congress with the reality of FGM, and eventually it passed the Federal Prohibition of Female Genital Mutilation Act in 1996, making it a federal crime punishable by up to five years in prison. Alice Walker, who fictionalized the issue in *Possessing*, and others who wrote about their private ordeals have horrified Americans. What followed these revelations was a Western media blitz tending toward sensationalism and polemics. Can we claim moral superiority in a country where increasing incidents of rape, sexual assault, wife battering, and sexual harassment against women made it necessary for us to pass the Violence Against Women Act in 1994?

Whether or not First World countries can claim moral superiority, it is going to take the hard work of an international community, including the support of Amnesty International, the World Health Organization, and the United Nations, as well as local and international human rights and women’s organizations, to debate the violation of human rights and health issues. The polar positions taken are: 1) extreme cultural relativism—FGC practiced on girls is tied up with national identity, and we cannot judge another country’s morals and interfere; or 2) we should withhold aid from countries practicing FGC. The dire consequences of FGC stir the public conscience, causing the world community to become involved, as it has been in trying to eradicate slavery, genocide, and infanticide. The two million girls each year who undergo FGC,

and especially infibulation, risk a myriad of mental and physical health problems, including shock, trauma, and hemorrhage; bacterial and HIV infections; incontinence and menstrual problems; sterility, frigidity, and childbirth problems. Many will die. The World Health Organization says it will take educating three generations to eradicate FGC.

Part of the world feels it is contentious to call their venerable female circumcision rite “mutilation”; nevertheless, for most Americans Secretary of State Madeleine Albright put it best: “When people are mutilated, it is criminal, not cultural.”

Synopsis of the Novel

In Walker’s *Possessing the Secret of Joy* there are seven main characters, and every few pages the viewpoint changes with each new speaker. Tashi, who is a peripheral character in *The Color Purple*, has shown allegiance to her Olinkan people by having the tribal marks cut onto her face and by having the female genital cutting ceremony. The book begins in a flashback when the imaginative Tashi, who is now an American, reflects on what her life has become. Telling the parable of the panthers, Tashi sets the tone for the whole book, and she moves the plot along by intermittently telling myths and stories.

Raised in Olinki, Tashi’s sister, Dura, died after a ceremonial genital cutting ritual. The African-American missionary’s children, Olivia and Adam, befriend Tashi. Adam becomes her lover, breaking tribal taboos. Adam also meets Lisette, a white French Algerian missionary, with whom he shares stories of the Olinkan culture. Tashi, in the name of Olinkan pride, has the circumciser M’Lissa excise and infibulate her, above the protests of her Christian mother, Adam, and Olivia. By doing this, she intends to join in solidarity with the other women. She sees them as strong and invincible African women.

Days after the operation, Tashi is told to sit up and walk a few steps—her own proud walk has become a permanent shuffle. It takes 15 minutes to urinate now. Her menstrual cramps last half the month because it is nearly impossible for flow to pass through so tiny an aperture. The residual flow that does not find its way out and is not reabsorbed into her body has nowhere to go; so the odor of soured blood follows her around. Tashi’s friend Olivia observes, “That her soul had been dealt a mortal blow was plain for anyone who dared look into her eyes.”

Adam marries his friend, the once proud and lively Tashi, who is now

heartbreakingly slowed by pain, and takes her back to the United States. Living biculturally, Tashi cannot rationalize the emotional anguish she experiences daily in the name of her tribal leader's call for Olinkan pride, so she sees several psychiatrists. The first one tells her Negro women cannot be cured "because they can never bring themselves to blame their mothers." Tashi still thinks of herself as an African woman, not an American Negro. Another psychiatrist, Lisette's white uncle (the Old Man or Mzee), tries to help Tashi in Switzerland with art therapy and by analyzing her dreams, which she cannot share with her husband. When the Old Man dies, the black feminist Raye becomes her therapist.

Tashi explains to Raye how her African leader mandated FGM from one generation to the next through a sacred tribal code, there being a strong cultural taboo against speaking of it to outsiders. The act was designed to keep the female body pure by cutting out the dual female soul that interferes with male domination. If a woman is not circumcised, the myth goes, her unclean parts will grow long and touch her thighs. Unremedied, warn the elders, who act as if they have recently witnessed this evil, no man can enter this masculine woman, who arouses herself. The circumcised women do not remember having vaginal lips or a clitoris, so they laugh and jeer at the monstrous "tail"; circumcised girls run from "the demon." The tribe passes on unverified beliefs because the old ways must be kept. Tashi, who had been a young orgasmic girl with Adam, gave up her sexuality to preserve the old ways.

In America, Adam and Tashi have a son, Benny, born retarded from passing through the birth canal narrowed by FGM. Unable to bear further pain, Tashi then aborts a subsequent pregnancy. Adam later becomes reacquainted with the free-spirited Lisette, and they become lovers, seeing each other on his biannual visits to Paris. Together they have a child, Pierre, which enrages the dispirited Tashi. Pierre, unlike Benny, is bright and inquisitive; he studies Black American Literature and decides to go to school in America. His mother has died, and he wants to become closer to his father. Tashi feels threatened and attacks Pierre.

Tashi returns to Olinka when she reads about M'Lissa's becoming a venerated symbol of Olinkan pride. In an elaborate scheme, the tortured Tashi, now in advanced middle age, plots her revenge. She seeks an audience with the venerated circumciser M'Lissa, and over a period of several weeks they talk. Tashi ritually washes her intended victim, who taunts her for foolishly submitting to

circumcision. M'Lissa is prepared to become a martyr, and Tashi smothers her with a pillow as she attends her. She is indicted for murder.

Tashi is imprisoned in Olinka and put on trial for killing M'Lissa. Her family and friends are there to support her, and Adam reflects on how he has witnessed his wife's hell on earth. The prison also houses a whole floor of AIDS patients waiting to die. Many believe they contracted AIDS in an experiment, like the Tuskegee Syphilis Study, when scientists vaccinated them for polio.

In the end, Tashi grows weary of the plodding trial and confesses to the murder; nevertheless, the trial, a media circus, goes on. At her execution by firing squad on the soccer field, Tashi is released from her tortured soul for "killing someone who, many years ago, killed me." Adam, Olivia, Benny, Pierre, Raye, and Mbatl, their friend, hold a banner: RESISTANCE IS THE SECRET OF JOY!

Literary Analysis

In *Possessing* the black liberal feminist Alice Walker dramatizes how her main character, Tashi, in an act of tribal allegiance, gets facial scarring and circumcision "because she recognized it as the only remaining definitive stamp of Olinka tradition." The tribe's leader, who is compared to Nelson Mandela and even Jesus Christ, has instructed the people "not to neglect ancient customs." He has been imprisoned by the white regime. Walker explores the effects of FGM in a dazzling style that simultaneously seems to contrast and to transcend cultural differences. The various viewpoints are artfully integrated into dialogue and flashbacks, intermixed with myths, symbols, and psychology. Walker uses the narrative device of renaming Tashi relative to her changing cultural and psychological state of mind; for example, when referring to her evolving American self she is "Tashi-Evelyn." In this way, Walker conveys the essence of Tashi's journey.

Tashi is not a sympathetic character, however, because she was circumcised against the wishes of her Christian mother whose other daughter died as a result from FGM. Furthermore, because Tashi was sexually responsive with Adam, she knows the operation will result in a loss of pleasure. Even after Tashi's sparkling youthfulness turns into a flat-eyed passivity, Adam marries her, and she emigrates with him to America. Only then does she understand her physical and emotional loss and explode into rage. This analysis, in particular, shows how Walker creates in *Possessing* a bicultural lens through which we can examine Tashi's African soul and warring American consciousness.

The title, *Possessing the Secret of Joy*, reflected in the first epigraph, derives more fully from a passage in Mirella Ricciardi's 1982 memoir *African Saga*. Ricciardi was a French-Italian woman born and raised on a farm in Kenya, then a colony of British East Africa, who wrote, "Black people are natural, they possess the secret of joy, which is why they can survive the suffering and humiliation inflicted upon them. They are alive physically and emotionally, which makes them easy to live with. What I had not yet learned to deal with was their cunning and their natural instinct for self-preservation" (Ricciardi 147). The condescending tone of Ricciardi's colonial remembrance highlights how nationalistic backlash plays into Tashi's mindset when she undergoes FGM. In *Possessing's* scenario, a First World organization's attempts to change a Third World culture cause defiant anticolonial acts.

Walker's second epigraph/proverb further sets the story into its bicultural context, prophesying Tashi's state of being torn apart from within: "When the axe came into the forest, the trees said the handle is one of us." Walker's plot borrows further from Ngugi wa Thiong'o's novel *The River Between* (1965), in which two lovers living across the river from each other play out the drama of Christian converts clashing with African traditionalists. Like *River*, Walker's theme in *Possessing* argues that female circumcision destroys not only individual women but their country as well. Tashi endures pain to prove her devotion to tribal heritage; she symbolizes ritual sacrifice and the ultimate hope for change. Likewise, the circumciser M'Lissa, a "monument," symbolizes ancient beliefs and keeping the old ways.

Possessing is a vehicle for Walker's own feminist agenda. By putting Tashi into a particular context, Walker is able to develop her human rights and health issues as well as argue for political change. Tashi's story becomes part of Walker's own. For instance, the autobiographical elements are clear when Walker refers to FGM as "sexual blinding," a reference to her brothers shooting her in the eye and swearing her to silence. Both Walker and her character Tashi aborted a pregnancy and bridged cultures in search of an identity. They are storytellers whose myths teach lessons, filling the novel with stories of repression, of struggles, and eventually of self-actualization.

Walker's strong female character, Adam's lover Lisette (Walker's alter-ego), is an altruistic white woman who, as the voice of reason, contrasts with the emotional Tashi. As a youth Lisette had visited Olinka with a church youth group, and her family members were colonists in Algeria. As an adult she is a

high school French teacher in Paris who studies her "co-wife" Tashi from afar. The novel's opening parable of the panther foreshadows the Tashi-Adam-Lisette love triangle and even foretells the outcome. Adam's child with Tashi, the American-born retarded Benny, during his birth becomes a painful sideshow for Western doctors; his child with Lisette, the Paris-born precocious Pierre, is the result of a natural, orgasmic home birth. The autonomous Lisette starkly contrasts with the fractured Tashi.

After Lisette dies from cancer, Pierre "continues to untangle the threads of mystery that kept his stepmother Tashi enmeshed." He reports that FGM may have been a reaction to "the Hottentot apron," or, as described by early European anthropologists, the unusually elongated labia on uncircumcised Khoisan women with enlarged buttocks (steatopygia). The bisexual and biracial Harvard-educated Pierre explains how some tribes eventually decided a woman's dual genitalia needed modifying because she could not perform both female and male roles.

The interesting parade of "shrinks" that try to help Tashi begins with a white "son of Freud" couch analyst who gawks at her as a publishable case history. He simplistically declares that healing is impossible because Africans cannot blame their mothers. Tashi's next analyst is Lisette's uncle, the Old Man or Mzee. Clearly, as Walker references in her afterword, her Old Man character is Carl Jung (1875-1961), the Swiss analytical psychologist who opposed Freud's idea that the libido (sexual instinct) alone drives life. Jung differed from Freud by espousing an interest in the opposites in nature (the divided self), even expressed in the way Jung, unlike Freud's couch analysis, sat in a chair opposite his patient to actively engage in dialogue.

Applying the Old Man's Jungian psychology to the bicultural/divided Tashi, she must reconcile her conscious ego with her unconscious, repressed experiences through interpreting her dreams, stories, and art. For example, during art therapy, after Tashi drew a large, evil rooster ("a humongous feathered creature"), she felt she was "seeing the cause of her anxiety itself for the first time, exactly as it was." It was a beast-sized indication of her psychosis, the "emotions that had frightened her insane." All at once Tashi remembered hiding in the grass and witnessing her sister's murder: "No longer would my weeping be separate from what I knew." The insidious tribal taboo demanding silence and repression had subverted her childhood memory.

That Walker, herself, underwent Jungian analysis is evident in how she

develops its tenets in *Possessing*. Jung's archetypal elements of the ego (central consciousness), shadow (unpleasant unconscious—Dr. Jekyll to Mr. Hyde), animus (Tashi's masculine unconscious mind), and Self (whole regulating center of the psyche, transcending the ego) help identify Tashi's psychological process toward wholeness or individuation. Simply put, Walker equates Jung's psychic ideal—harmonizing the conscious and unconscious; decentralizing the ego; and acknowledging the shadow and animus—with Tashi's coming to terms with her past, at last bringing her discovered Self spiritual peace. Even Walker's final chapter title, "Tashi Evelyn Johnson Soul," cues the reader that Tashi's fragmented mental state is at last reconciled.

After the Old Man dies, Tashi's new analyst, the black American feminist Raye, only understands Tashi's physical pain after having her own periodontal surgery. Tashi opens up to her, breaking her silence and referencing her shadow or dark self, and self-acceptance follows. Raye and Pierre analyze Tashi's dream of being the Queen termite with broken wings imprisoned in a dark tower. In African culture, the protruding termite hill symbolizes an elevated clitoris barring male entry; the hill being cut down symbolizes the ritual desexing. Because the girl's male soul is in the clitoris, it must be excised to rid her of the dangerous duality.

But Tashi's personal anguish cannot be assuaged by Pierre's anthropological facts, the Old Man's analytical psychology, or Raye's empathy alone, so she premeditates killing the old circumciser M'Lissa. Tashi returns to Africa with a banner that reads, "If you lie to yourself about your own pain, you will be killed by those who claimed you enjoyed it." Ironically, M'Lissa is unremorseful about her ancient practice of excising and infibulating the Olinkan girls; she even expects to be martyred, robbing Tashi of satisfaction. Walker, as embodied in *Possessing*, speaks directly to the tribal mothers who she believes subject their daughters to perpetual lies, to familiar tortures, and to the murders of the spirit.

Detractors say Walker's novel is overwrought sensationalism and polemics and should not be read as a fact-based anthropological study of FGM, in decline since 1920. They say that while Walker's feminist ideology in *Possessing* has impacted FGM legislation here and cultural interventions abroad, it tends to subsume the myriad of issues facing African women into the reductionist's view they are only mutilated genitals. Hence, the "yuck factor" eclipses productive debate. On the other hand, the cultural relativists believe tribal cus-

toms are an integral part of each society and should be observed but not interfered with. In the mid-twentieth century their controversial views superseded the late nineteenth-century Social Darwinians who classified societies on the basis of race.

Regrettably, when First World organizations attack tribal practices perceived as objectionable, nationalistic backlashes occur, as seen in *Possessing*. Furthermore, the notion of women as oppressed victims of men becomes questionable in some cultures where the social interaction in FGC builds sisterhoods and elevates their tribal status, says Efua Dorkenoo in *Cutting the Rose*. Critics contend that Walker created an explosive topic with some misrepresentation and started a mass media trend toward First World voyeurism, leaving to be desired practical approaches to address the issues it raises.

In sum, *Possessing* is about one woman's struggle with her African heritage and her right to self-determination beyond cultural constraints. It is not a factual anthropologist's case study but rather has the emotional power of literature. Even as sensationalized cultural criticism, it has added to the general dialogue on human rights and health issues. In principle, it foregrounds a number of issues of cultural, medical, and legal importance. It shows women complicit in a world run by male ideologies, culture intersecting with gender and health issues, and Walker's ethical basis for a controversial worldwide stance. In a postscript Walker claims Tashi as her sister, even though she does not know where her own African ancestors came from. While *Possessing* powerfully addresses FGM and highlights AIDS, for some her Western feminist approach remains problematic.

In the end, Tashi's friend Mbatu reflects on the colonialist memoir, Ricciardi's *African Saga*, underscoring Walker's interpretation of possessing the secret of joy: "Oh, I say. These settler cannibals. Why don't they just steal our land, mine our gold, chop down our forests, pollute our rivers, enslave us to work on their farms, fuck us, devour our flesh and leave us alone? Why must they also write about how much joy we possess?" At Tashi's execution, her friends and family hold a sign: "RESISTANCE IS THE SECRET OF JOY!" And only after dying, when her divided selves unite into her whole Self, has Tashi resisted what is evil (the power over her) to possess the secret of joy.

Topics for Oral and Written Discussion

- Compare and contrast Kesey's Chief and Walker's Tashi as examples of how mental and physical illness derives from a specific culture as well as from disease. How have *Cuckoo's Nest* and *Possessing* had the power to change the system?
- With increasing global awareness of human rights violations effected through literature and organizations such as Amnesty International, the World Health Organization, and the United Nations, why do certain cultural practices like FGM continue? What are cultural relativism and Social Darwinism?
- Reflecting on Tashi's painful physical abnormalities, describe how it affects her mental state, as she describes it to her various mental health professionals. How in particular does the Jungian analytical psychologist work with her to ultimately achieve her Self?
- While the Olinkan male leader appears to mandate FGM, how and why are the tribal women complicit in maintaining the ritual?
- Compare and contrast the tortured Tashi and the free-spirited Lisette. How do these two women interrelate?
- Discuss how Pierre and Benny represent their respective mother's autonomy and inadequacies.
- How does Walker, an imaginative storyteller, use symbols (Tashi, M'Lissa, termite hill, clay), parables, and myths to tell Tashi's story and to teach a lesson?
- As highlighted in *Possessing*, how has the Tuskegee Syphilis Study impacted the question of trust in treating AIDS in Africa?
- What is M'Lissa's perspective on FGM and her actions, as told to Tashi, before her death?
- On Tashi's journey toward wholeness, what is her resistance to, in teaching us about the secret of joy?

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Chapter Five

End of Life—Disease and Death: An Analysis of John Updike’s *Rabbit at Rest* and Margaret Edson’s *Wit*

Introduction

While chapter 4 shows clashing cultural extremes, chapter 5 focuses more on our commonality of moving inexorably toward death. The quality of our passage may depend on how we care for our bodies, minds, and spirits.

John Updike chronicles his main character’s lifestyle and its consequences in a quartet of famous novels: *Rabbit, Run* (1960), *Rabbit Redux* (1971), *Rabbit is Rich* (1981), and *Rabbit at Rest* (1990). By updating Rabbit’s life every decade—from his 20s to mid-50s—Updike portrays his high school basketball star’s turning into a self-indulgent car salesman. Updike’s everyman lives through the 1960s “decade of discontent,” the 1970s “Me Decade,” and the AIDS-plagued 1980s, emphasizing the health consequences of the sexual habits of the time. Years of self-abuse lead to Rabbit’s rapid decline during the last years of his life, leaving him little reason to live.

In *Rabbit at Rest* Updike artfully dissects middle-class dysfunctional life, giving a powerful cultural critique of America. He juxtaposes technical and metaphorical language to describe Rabbit’s various diseases, symptomatically expressed as morbidly depressed, chest pains, and a bloated body worn “like a set of blankets the decades have brought one by one,” all leading to a fatal heart attack. *Rabbit at Rest* illuminates specifically how untimely deaths occur when contemporary medicine records life expectancy at an all-time high. Other topics it covers are cocaine addiction, patient experience, family relationships, and American hedonism.

Dr. Vivian Bearing’s courageous and protracted death from cancer in Margaret Edson’s play *Wit* counters Rabbit’s self-inflicted early demise from

heart disease in John Updike's *Rabbit at Rest*. In the Pulitzer Prize-winning play, poetry, science, and death interrelate for Bearing, a John Donne professor and stage 4 metastatic cancer patient. She becomes a research subject to contribute to knowledge, even without therapeutic value for her. During eight months of chemotherapy the dedicated scholar turns from erudite to vulnerable. She has only one hospital visitor, having valued ideas over personal relationships. Special insights on the medical professional-patient relationship come through two supporting characters: the compassionate nurse who knows how to emotionally nurture and the unfeeling young research doctor with so-called detached concern. The play gives scenarios that define *empathy* and *compassion*. It asks, how do you treat the dying patient? What do you say to soothe rather than add insult to injury?

Edson puts the American medical system on trial in *Wit* by boldly looking at doctor paternalism, patient autonomy, and human rights in clinical trials. She shows how hope, kindness, and a sympathetic touch can interface with research ethics. In a layered approach using metaphysical poetry to shed light on twenty-first century medical research, *Wit* also ponders serious philosophical and religious questions, asking how can we live a fulfilling life by giving and receiving love? Furthermore, in our medicalized system of dying, how can we realize a good death?

Wit dramatically evokes a spirituality to bring catharsis: "And death shall be no more, Death thou shalt die" (John Donne, *Devotions upon Emergent Occasions*, London 1624). Notwithstanding the poetic revelation that everlasting life follows death, the play's themes underscore the present-day need for better trained end-of-life and palliative-care medical professionals. Lastly *Wit*, by evoking laughter and tears, allows us to take an unflinching look at disease, dying, and death.

JOHN UPDIKE'S
RABBIT AT REST (1990)

Food to the indolent is poison, not sustenance.

– *Life and Times of Frederick Douglass*
 (*Rabbit at Rest* epigraph)

Historical Context

John Hoyer Updike was born in Reading, Pennsylvania, in 1932 but grew up in nearby Shillington. His mother, an unpublished writer, encouraged him to read and to write; his father was a math teacher. In his youth Updike suffered from an embarrassing stutter and disfiguring psoriasis (“From the Journal of a Leper”).

Updike, president and coaledictorian of his Shillington High School class of 1950, said he entered Harvard “a true tabula rasa,” absorbing whatever it offered. He drew cartoons for its famous humor magazine, the *Harvard Lampoon*. After he graduated with an English degree in 1954, he and his wife Mary Pennington moved to Oxford, England, where Updike studied art at the Ruskin School of Drawing and Fine Arts. In 1955 his first job was as a *New Yorker* staff writer. Two years later Updike became a full-time writer, moving to Ipswich, Massachusetts. His first book, *The Carpenter Hen and Other Tame Creatures*, a collection of poetry, was published in 1958. The next year he published his first novel, *The Poorhouse Fair* (1959). During the 17 years Updike lived in Ipswich, he keenly observed its suburban couples, writing about their sexual antics in *Couples* (1968). Adultery and divorce continued as a theme in his *Rabbit* tetralogy.

The prolific John Updike published more than 50 volumes, including poetry, essays, novels, and short stories, much of it scrutinizing contemporary American culture. He rendered the flaws of his characters in eloquent language, often writing autobiographically, as most authors do. He received two Pulitzer Prizes for fiction: *Rabbit is Rich* (1982) and *Rabbit at Rest* (1991). In 2003 Updike was honored with the National Humanities Medal. After Updike and his first wife, Mary Pennington, divorced, he married Martha Bernhard in 1977. He was the father of four children and lived in rural Massachusetts, near Boston, until his death in 2009.

Updike gives a powerful cultural critique of American life in *Rabbit at Rest*. The specific medical issue it addresses is how his everyman protagonist, Harry “Rabbit” Angstrom, has abused his body, mind, and spirit for most of his life, culminating in a fatal heart attack. When the average life expectancy exceeded 82 (IRS Table I), he died at 55. To understand Rabbit’s plight, study the amazing four-chambered human heart with its complex of arteries, veins, and valves. It is a dynamic double-pump action organ with an all-important pace-making sinoatrial node, beating 100,000 rhythmic beats a day. The right side reoxygenates the blood in the lungs; then the left side returns 14,000 pints of blood daily to the entire body from head to toe. Indeed, a healthy heart, looking like a valentine, is a masterwork of nature that we relate to feelings, often referring to it as the seat of the soul.

When the heart for any number of reasons fails to deliver its oxygen-laden and nutrient-rich blood all over the body, including to the lungs, liver, kidneys, and the brain, it causes a number of systems’ failures. In particular, when the brain has been deprived of oxygen for as little as two to four minutes, brain death occurs, as partly determined by an electroencephalogram (EEG) reading. Brain death, pronounceable by a doctor, is a legal term.

Some medical context, focused specifically for discussing this novel, is useful. Heart attack warning signs for males, as described in *Rabbit at Rest*, are listed by the American Heart Association:

- Chest discomfort. Most heart attacks involve discomfort in the center of the chest that lasts more than a few minutes, or that goes away and comes back. It can feel like uncomfortable pressure, squeezing, fullness or pain.
- Discomfort in other areas of the upper body. Symptoms can include pain or discomfort in one or both arms, the back, neck, jaw or stomach.
- Shortness of breath with or without chest discomfort.
- Other signs may include breaking out in a cold sweat, nausea or light-headedness.

The afflicted also may experience an irregular heart rate, paleness, and feeling an impending sense of doom. The signs may come and go, as Updike chronicles in *Rabbit at Rest*, and not all of them may appear in every attack.

If there is no breathing or pulse (cardiopulmonary arrest), cardiopulmo-

nary resuscitation (CPR) must be started immediately and 911 emergency help called. If an automated external defibrillator is nearby with a trained operator, it should be used immediately to restart the heart. Only a doctor will make the actual diagnosis of a heart attack after a physical examination including patient medical history, an EKG that ascertains heart abnormalities, and a blood test detecting abnormal enzyme levels. Americans suffer 1.2 million heart attacks every year and many of them die.

There is good news. Studies of centenarians show how to extend longevity. The Living to 100 Life Expectancy Calculator relates ways to a healthier, longer life: keeping an optimistic attitude to manage stress, avoiding tobacco and excessive alcohol, and maintaining an ideal weight. Obesity, the silent epidemic, is defined as 20 percent above ideal weight or a BMI of 30 or more. It affects over 30 percent of adults and 25 percent of our children. Even one in four pets is overweight. *Rabbit at Rest* describes one man's indolent lifestyle and how his obesity, stress, and depression culminate in a fatal heart attack.

Synopsis of the Novel

It is the end of December 1988. Harry "Rabbit" Angstrom is a white, middle-class, married male with a dysfunctional family, whose years of self-abuse surface in this last novel of Updike's famous *Rabbit* series. Now 55, he is a grandfather who has lived anxiously through the end of the Cold War and into the War on Drugs with both his family and country still in crisis. The social backdrop includes political references to the Ronald Reagan and George H.W. Bush administrations and multiple death references, including to AIDS, Roy Orbison, and Pan Am 103 exploding over Scotland. Thus, the novel's tone is elegiac, echoing the past decades of discontent and foreshadowing Rabbit's demise.

Rabbit and his wife, Janice, meet their son, Nelson, and his wife, Pru, and their two children, Roy (4) and Judy (almost 9), at the Miami airport. Right away the family situation becomes stressful when Rabbit takes Judy to buy candy and then cannot find his car; later there are more quarrels over nixing a Disneyland trip and making sleeping arrangements. Additional problems arise because the drug-addicted Nelson has taken over the family car sales business inherited by Janice, but he lacks the competency to manage it. One conflict after another stresses Rabbit's plaque-narrowed arteries.

Three days later Rabbit saves Judy from drowning after their sailboat cap-

sizes; he has a mild heart attack and is taken to the hospital. While floating in a world of Demerol, Rabbit learns he has a typical American heart: “tired and stiff and full of crud.” The whole family visits him. The doctor explains the diagnosis, and then he discusses interventions like angioplasty and bypass grafting surgery. He recommends a new dietary plan. Nelson’s family returns home to Brewer, Pennsylvania.

In Part 2 it is mid-April, and Rabbit and Janice return to springtime Brewer. While Janice looks for a job, Rabbit reflects on his dismal past, visiting his ill former lover, Thelma, whose disease, systemic lupus erythematosus, has depleted her family’s income and spirit. He learns from her that Nelson is a cocaine addict, causing Rabbit additional worry about AIDS. He visits Springer Motors, discovering Nelson has taken down his old basketball star photos and has hired a woman. The homosexual AIDS-inflicted bookkeeper, Lyle, refuses to show him the books.

Janice takes Penn State extension real estate courses, while Rabbit frets about Nelson. They talk about Nelson’s drug addiction and his bleeding the company. They receive threatening calls from his unpaid drug dealers. They are guilt-ridden for raising Nelson to be so troubled. Rabbit asks his friend, Charlie Stavros, for advice, and they discuss Brewer’s drug problem at large. Late one evening after the drugged-up Nelson attacks Pru, she calls Janice and Rabbit for help. They are divisive in their approach to Nelson.

In mid-May Rabbit undergoes a hospital angioplasty, fully described in the novel, to widen the narrowing arteries to his heart. He feels sandbagged when he learns that what was described to him as a simple Mickey-Mouse procedure requires the surgeon, two attending nurses, and a bypass team standing by. His nurse may even be his illegitimate daughter. Rabbit resents Charlie Stavros for advising and consoling Janice. Janice fires the bookkeeper, and Rabbit feels threatened by her taking charge of the business rather than managing their household. Dr. Breit tells Rabbit his angioplasty was not totally successful because there is still 80 percent blockage in his right coronary artery. Also, because he may have suffered a postoperative myocardial infarction (MI), Dr. Breit strongly recommends the more drastic coronary artery bypass graft. “They split you right open like a coconut and rip veins out of your legs,” Rabbit tells his sister, Mim, during a depressing phone call.

Rabbit is distrustful of Dr. Breit, suspecting he has a surgical quota to achieve. Janice, too busy with classes, has not visited him in the hospital, but,

when she does, she relates how the car lot revenue has gone to Nelson's drug habit and Lyle's AIDS medicines. Thelma and her husband, Ronnie, visit Rabbit. She is demoralized from dealing with her disease. Nelson goes to a nearby rehab facility, learning the Narcotics Anonymous first principle of "admitting you're powerless and dependent on a higher power." Rabbit, released from the hospital into Pru's care because Janice is busy taking real estate tests, makes love to her. Back running the car lot, Rabbit uncovers Nelson's malfeasance and reinstalls his own enlarged high school basketball photos on the wall. Rabbit, whose strange brand of religion has been replaced by cynicism, reluctantly attends family counseling. To Rabbit's chagrin, Nelson, who reminds him of Hitler and sounds like a minister, hugs him for the first time in their adult lives.

In part 3, appropriately called "MI," Rabbit marches as Uncle Sam in the Mount Judge Fourth of July parade. He attends Thelma's funeral, where her husband Ronnie argues with him. In early August the Toyota representative visits Rabbit on the lot and cancels the franchise. Janice warns Rabbit about his health habits, and Nelson returns from rehab, his life plan being to change "a day at a time with the help of a higher power." Janice and Nelson dash Rabbit's high expectations about running the business again. They want to get grant money to turn it into a drug treatment center. The Toyota loan is paid with a second mortgage on the property. When Janice talks of moving in with Nelson and Pru to save money, the latter tells Janice of her affair with Rabbit, who then takes off on a marathon drive to their Florida condo.

Eating junk food along the way, he learns on the radio that Bart Giamatti, the baseball commissioner who dealt with the Pete Rose fiasco, has died at age 51. Alone in the condo, Rabbit becomes depressed and makes an appointment with Dr. Morris who advises him on a health plan: eat right, walk, and get absorbed in "something outside yourself and your heart will stop talking to you." Nelson, Pru, and Janice are moving forward with their lives, while Rabbit reflects on the past. The healthy foods he tries are unpalatable to him, and for an exercise regimen he chooses walking. On a trek one day, he joins a young black man in a pickup basketball game and suffers a massive heart attack. Janice flies to Florida to forgive him; a remorseful Nelson begs him not to die. But Rabbit assures his son, "It isn't so bad," and thinks laconically to himself: "Enough."

Literary Analysis

Larry “Rabbit” Angstrom, the fictional antihero in the *Rabbit* quartet, and John Updike, his creator, led parallel lives. Both were born in the early 1930s and grew up around Reading, Pennsylvania. There, however, the similarities end. While Rabbit was a “beautiful brainless guy” whose glory days peaked at 18, Updike became a world-famous author, an ability seeded in a Harvard education.

The *Rabbit* series derived from Updike’s early blank verse poem, “The Ex-Basketball Player,” in which the speaker mocks the title character with no appreciable talents to transfer into the bigger world. The ex-jock Flick Webb accepts his mediocre fate as a small town gas station pump-jockey. The townspeople who once lived vicariously through his high school accomplishments now give him only fleeting affirmation. Updike’s skillful use of figurative language and images builds the contrast between Flick’s lackluster adult life and his short-lived fame. The poem, replete with sports analogies, correlates Flick’s cut off, bleak future with having never learned a trade—the idiot just exists. After Updike wrote the poem in the 1950s, he imagined Flick’s life further into the future, becoming the *Rabbit* quartet.

This analysis focuses on how Rabbit, an everyman middle-class, white Protestant male, embodies late twentieth-century American culture. He experienced adolescent and young adult sexuality during the postwar boom of the mid-1940s through the 1950s. He was a married man and adulterer with a family during the hippie 1960s and the feminist 1970s (also called the age of discontent). In fact, author Tom Wolfe coined the term the Me Decade to describe the selfish seventies mentality, which Updike applied to the impulsive, sexually-obsessed Rabbit who shirked commitment. By the time we catch up to Rabbit in *Rabbit at Rest*, it is now the AIDS-plagued 1980s, foreshadowing Updike’s deep theme, “the blossoming and fruition of the seed of death we all carry inside us” (Oates 449). The novel covers the last nine-month period in the life of Rabbit Angstrom, who has a lot of baggage. He is all of these things: racist, xenophobic, misogynist, and homophobic. It is all described in three chapters titled after his states of being: “Florida,” “Pennsylvania,” and “MI” (myocardial infarction).

In the first chapter the 6’3” Rabbit is 55 years old and 40 pounds overweight, making him late middle-aged and obese. He and his long-suffering wife, Janice, are semi-retired in Florida. After they pick up their estranged son

and his family at the airport “a sense of doom regrows its claws around his heart.” Thereby, right from the beginning at their unpleasant and stressful family reunion, Updike artfully interweaves into the scene a classic symptom of heart disease, following it with a description of the gluttonous lifestyle supporting it. That is, Updike’s omniscient narrator speaking for the brooding Rabbit fully orients descriptions of his stress, overeating, and depression to his angina pains, bloated body, and the frightening sensation there is “nothing under you but black space.”

Rabbit becomes a focal point around which an understanding of an era develops. Having lived through the Cold War, Rabbit bursts with pride when President Ronald Reagan tears down the symbol of communism, the Berlin Wall. Readers who have seen the American and Russian Presidents, Bush and Putin respectively, embrace in solidarity in the twenty-first century are fascinated to hear descriptions of students’ duck-and-cover desk drills during an age of nuclear bomb threats. Rabbit also lived into the war on drugs, unsafe sex, and AIDS concerns, leaving him with a sense of impending doom. A sexually promiscuous antihero, he embodies the free-love culture and its consequences. The novel, with its references to air disasters such as the explosion of Pan Am 103 over Scotland, foretells the age of terrorism.

The many cultural threads woven throughout the novel, namely historical, political, economic, religious, and social, provide a backdrop for the emphasis Updike places on Rabbit’s lifestyle with its consequential medical issues. In particular, Rabbit is best understood by looking at what he relates to the most: food, sex, and sports. Once an admired high school athlete, he is now an indolent aging junk-food addict. His fixation on sports heroes, such as football and baseball player Deion “Prime Time” Sanders, helps him vicariously relive his glory days of being the star of the show.

In the spring Rabbit’s egotism transfers wholly to baseball, as American as apple pie and heart disease. The Philadelphia Phillies all-star third baseman Mike Schmidt, a has-been, as reported in the media, hits two home runs in the first two games of the season. It reinvigorates Rabbit until the injured Schmidt retires at 39.

Moreover, the Pete Rose fiasco agitates Rabbit. Baseball Commissioner Bart Giamatti imposed a lifetime ban from baseball on Rose for gambling on his own team. Rabbit, whose muscle has turned to fat, is leading the type of lifestyle that caused Giamatti’s massive heart attack death at 51. But, without

changing his bad habits, he rationalizes that, unlike Giamatti, he is a non-smoker. When his son, Nelson, removes the old Rabbit basketball photos at Springer Motors, the slender thread by which Rabbit's fragile ego is tethered snaps. He feels, "nothing matters very much, we'll all soon be dead," evoking a chronic depressive state.

As the last book in the tetralogy, *Rabbit at Rest* fascinates by showing Rabbit and the century winding down together. Riding the cultural tides until his energy gives out, he is "too old for flux." He is also too close to his own predicaments for self-awareness and too shortsighted to view change as an opportunity for renewal. Sadly, he even sees the birth of his granddaughter as another nail in the coffin.

Suffering from hardening both of the arteries and of ideology makes Rabbit an average aging American male, in Updike's view, who tends to react instinctually rather than to act rationally with forethought. His actions in the sexually promiscuous climate lead to adultery and an illegitimate child. In addition to living hedonistically, he feels spiritually alienated, fearing his own death in a godless culture. In his mid-fifties, Rabbit must face the consequences of his past to live out a mediocre life with implacable regret. There will be no golden years.

The desolate Rabbit, after a tryst with his daughter-in-law, flees to Florida. The smell of death is all around. Having no reserve, he is now "ready to succumb to the heaviness of being." Janice, on the other hand, embraces a new feminist independence. Disinterested in her philandering husband, she becomes a successful realtor. After running Springer Motors into the ground, Nelson attends rehab for cocaine addiction. He achieves a new life despite his enabling mother and his father's refusal to continue family therapy.

But for Rabbit, his lack of inner resources causes his inability to change and to embrace life, leaving him in a state of perpetual male angst. Note the surname "Angstrom." There is no redemption. The fourth part of an epic American tragedy, *Rabbit at Rest* portrays not only an unsympathetic, aging American male but a disintegrating society at large. It is fitting that Rabbit un sentimentally accepts his fate and dies just after thinking one last thought: "Enough."

Life goes on in Brewer without Rabbit, as Updike explains in the novella, "Rabbit Remembered," a postscript to the series published in *Licks of Love* (2000). Now approaching the new millennium, Janice has married Rabbit's

nemesis, Thelma's former husband, and Nelson is a divorced father and a drug-free social worker. Through them Updike somewhat redeems a culture seen in decline, thereby expressing hope the old and new generation can change for the better.

In the final analysis, Updike treats the subject of disease and death in *Rabbit at Rest* so artistically that he triumphs over its dire reality enough to make Rabbit exemplar of a deteriorating body, teaching healthcare and ethics. It is too late for Rabbit, whose rapid decline is metaphorically America's story, but there will be readers who identify with Rabbit's downfall. And, as in the realm of all great tragedy, they may be transformed by the novel's events enough to achieve catharsis and to embrace change. Otherwise, if Rabbit represents the average man (or woman) who does not take personal responsibility for his health, the real American tragedy extends beyond the pages of Updike's book.

Topics for Oral and Written Discussion

- Describe how Rabbit is an antihero like Kesey's Mack and how his self-image and existential angst contribute to his unfortunate lifestyle and health problems. Add to your discussion Updike's poem "The Ex-Basketball Player."
- Correlate Rabbit's lifestyle (diet, exercise, stress) with his increasing cardiac symptoms in a study of how it contributed to his cardiac arrest. Use medical terms and apply the saying, "It's time to pay the piper," to Rabbit's final outcome.
- How did the decades through which Rabbit lived culturally acclimate him to bad personal habits? In particular, how does Tom Wolfe's description of the Me Decade apply to Rabbit?
- In *Rabbit at Rest*, an American tragedy, apply the term free will to Rabbit. If you were a medical professional who observed someone like Rabbit, not your patient, who exhibited heart disease symptoms, would you tell him to see a doctor?
- Describe how Nelson's cocaine habit affects his family relationships with his wife, children, and his mother and father. Who enables him? Who helps him?
- Define the traits Updike attributes Rabbit with, such as narcissistic, hedonistic, bigoted, misogynistic, xenophobic, and homophobic, then argue both sides, that either he is or he is not the product of his times

and typifies an average aging American male with a propensity for heart disease.

- Describe, medically, the effects of Rabbit's hedonism and indolence on his body (heart), then discuss: 1) the first medical procedure he underwent, 2) the more aggressive medical procedure another doctor recommended, and 3) the doctor-patient relationship in each event. If Rabbit's bypass doctor has a quota to meet, as Rabbit suspects, would this be ethical?
- Because Rabbit vicariously relates to various sports heroes, how do they, and specifically the Pete Rose-Bart Giamatti debacle, affect his well-being?
- How does isolation in Florida affect Rabbit's failure to recover from myocardial infarction?
- Describe how rehabilitation and feminism help Nelson and Janice, respectively, reclaim their lives.

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MARGARET EDSON'S
WIT (1999)

Once I did the teaching, now I am taught.

— Dr. Vivian Bearing, *Wit*

Historical Context

Margaret Edson was born on July 4, 1961, in Washington, D.C. Her medical social worker mother and her newspaper columnist father encouraged her high school drama interests. After she received a bachelor's degree in Renaissance history, magna cum laude, from Smith College in 1983, she traveled for two years working at odd jobs. For the next few years she was an oncology/AIDS patient clerk and volunteer social worker at the National Cancer Institute in Bethesda, Maryland. She witnessed protocols being developed to treat patients for ovarian cancer and HIV.

In 1991, from observing the medical teams and patients on the ward and from listening, she wrote *Wit* (also known as *W;t*), initially a regional theatre and off-off Broadway production. Edson received a master's degree in English from Georgetown University in 1992, and then she taught English as a second language and first grade in a D.C. public elementary school until 1998. While she was an Atlanta kindergarten teacher, in 1999, her career was briefly interrupted when she accepted the Pulitzer Prize for Drama. Today she lives in Atlanta with her partner, art historian Linda Merrill, and their two sons.

Wit has the rare quality of being simultaneously funny and heartbreaking as it deals with the subject of ovarian cancer, an often fatal disease if not caught in its early stages. The play also reviews clinical trial methods, including the effects of experimental drugs administered to terminal patients without offering any hope of cure. It dramatically depicts medical science in its hustle-and-bustle attempt to find better treatments and cures, subordinating the research subject's human needs. Therefore, the play scrutinizes the doctor-patient relationship, especially relating to respect shown for or withheld from the patient whose palliative care may therefore be lacking.

Although there is no possibility of healing *Wit*'s protagonist, Dr. Vivian Bearing, of stage 4 cancer, avoiding medical mistakes is also at issue. Patients achieve autonomy, or the right to self-determination, in part when their medi-

cal professionals learn to listen to them, a skill that can be modeled in narrative literature as illustrated here. Lastly, as a practicum in clinical trial methods, *Wit*'s analysis describes how institutional review boards (IRBs) take their ethical philosophy from The Belmont Report and follow Federal Drug Administration (FDA) regulations in drug studies. They oversee methods for ensuring the study participant's informed consent and privacy as well as work to avoid doctor and drug company conflicts of interest. Managing the patient's pain and utilizing hope for increasing the quality of life are also hands-on doctor-patient issues. In the mid-twentieth century *One Flew Over the Cuckoo's Nest* sharply criticized mental healthcare; now into the twenty-first century *Wit* casts a light on end-of-life issues.

Cancer is a leading cause of death in Americans, second only to heart disease. While breast cancer kills the most women, many gynecological cancers are part of the overall cancer statistic. Ovarian cancer, the so-called whispering disease because of its insidious nature, is detected in one in 70 predominantly perimenopausal and postmenopausal American women and often metastasizes undetected. Risk factors include family history of ovarian and breast cancer, high dietary fat, delayed menopause, and no or late childbearing. The use of oral contraceptives appears to decrease risk. Ovarian cancer often presents itself with a cluster of three persistent and severe symptoms: a swollen abdomen, a bloated feeling, and urgent urination. Other symptoms associated with the disease include gas pains, anorexia, backache, and indigestion.

Unfortunately, most women seek medical advice when their ovarian cancer is in the advance stage because the symptoms might be associated with other gynecological conditions. A routine pelvic exam or sonogram can detect an abdominal mass; however, because benign cysts are common, a cancer antigen blood test such as CA 125 and/or exploratory surgery may be needed to rule out malignant tumors. The ovaries of postmenopausal women are small so an enlarged mass is of significant concern.

Legislation proposed in 2003 as The Gynecologic Cancer Education and Awareness Act (HR3438), called Johanna's Law after Johanna Silver Gordon who died from ovarian cancer, outlines a national early detection and awareness program to give women and their healthcare providers the latest information on the symptoms and risk factors of gynecologic cancers, with ovarian cancer being the deadliest. The American Cancer Society estimates that in 2013 about 22,240 new cases of ovarian cancer will be diagnosed and 15,500 women will

die of it in the United States. The relative five-year survival rate is only 44 percent, depending on the stage of diagnosis. At the U.S. National Cancer Institute clinical trials are underway on a breakthrough proteomics diagnostic test for detecting bloodstream proteins produced by early stage cancer cells. This exciting news builds hope for early diagnosis followed by new treatments in development such as the anti-angiogenesis drugs that shut off a tumor's blood supply causing it to shrink.

With 1,600,000 cancer diagnoses in America in 2012, numerous clinical trials help to develop other diagnostic tests and treatments beyond surgery and chemotherapy. Researchers who enroll about two percent of adult cancer patients into drug studies get valuable data; desperate patients hope for a miracle. However, the reality of clinical trials conducted first in nonhumans and then in humans often results in pure research promising no therapeutic value for the participants, which brings into focus the question of their rights. The process begins at hospital admission, when patients are asked about any advance directives they have signed, including living wills, healthcare powers of attorney, and organ donation. A patient advocate is always available to field general complaints. The attending doctor reviews the patient's medical history, performs a physical examination, and presents a plan for healing. Along the way, the patient may seek an ethics consultation, which is a reasoned conversation with a professional about the values and choices made in healthcare.

When the patient enrolls in a drug study, as *Wit's* Dr. Bearing does, in reality an institutional review board (IRB) acts as a disinterested party to oversee research protocol. IRBs take their philosophy on what ethical research is from The Belmont Report commissioned by the Department of Health and Human Services. In 1974 the National Research Act created the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. The Nuremberg Code, derived from the World War II war crimes, was a prototype for the commission's guidelines.

For this discussion, the ethical principles and guidelines for the protection of human subjects include defining how participants are selected, how informed consent is obtained, how to assess risk-benefit ratio, and how to avoid conflict of interest. The boundaries between practice and research are defined. The basic ethical principles it sets out are: respect for persons (acknowledging autonomy and diminished capacity), beneficence (securing well-being and abiding by the Hippocratic maxim, "first, to do no harm"), and

justice (observing fairness in who bears the burden or receives the benefits).

Besides monitoring these practices and obtaining legally effective informed consent from the subject or his or her legal representative, IRBs must carefully observe privacy regulations created by the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Therefore, respect for the patient's autonomy and guarding against any possibility of deceit or undue influence in a potentially vulnerable participant is paramount. Furthermore, in drug trials an IRB must carefully apply various titles of FDA codes of regulation. Investigational new drugs (IND) go through three graduated phases in the investigational process, as determined by the FDA, before FDA approval is sought and physician labeling procured.

Vivian Bearing is probably enrolled in a Phase 3 frontline drug study to evaluate the effectiveness and safety of the drug. It may be deemed proper to push the dosage. The distinction must be made between suffering the patient would have as a part of her disease and that which may result from research participation. Any toxicity in the full dosage given Bearing could be evaluated by laboratory values and the parameters determined that could kill her. That is, administering the full dose may not be necessarily painful. In particular, the duties of IRB watchdogs include giving the research participant the opportunity to ask questions. Pertinent information must be explained so that the participant fully understands terms and risk-benefit ratios, all under FDA regulations.

When a patient becomes a study participant, like *Wit's* Dr. Vivian Bearing, facing illness—especially disease and dying—may take the courage of a lion-tamer, to borrow from Virginia Woolf in “On Being Ill.” While such studies are vital to medical training and can affect the future care of patients, often they are not in the best interests of the terminal patients. In addition, distraught family members may insist on keeping a patient alive through heroic measures, merely prolonging their loved one's suffering.

Therefore, economics becomes another primary concern in a healthcare system in crisis. Ongoing interdisciplinary talks between clinicians and philosophers address what it means to die in the twenty-first century, with technology altering our conception of death. These concerned individuals assess the implications for end-of-life caregiving to determine a reasonable duration in the dying process. Until assisted-suicide is legalized, state-by-state, in this country, fortifying the doctor-patient relationship is one solution to enable

private, apolitical end-of-life decisions.

Besides all of the above, Edson's *Wit* incorporates topics such as having hope, even in the terminal, and the importance of kindness, listening, and touching by healthcare professionals, making for a better end-of-life experience.

Synopsis of the Play

Professor Vivian Bearing, a literary researcher, is now herself the subject of cancer research. These two dissimilar fields of study form the foundation of a moving play looking at the boundaries of the intellect and the expanses of the heart. Primarily set in a University Hospital Comprehensive Cancer Center room, there are no action breaks between scenes and no intermission in the 90-minute play. Therefore, lighting changes signify important transitions.

Dr. Bearing enters an empty stage pushing an IV pole, giving immediacy to her dire situation. She wears two overlapping hospital gowns for modesty and a hospital ID bracelet; she covers her baldness with a baseball cap. Out of a cast of nine, Bearing carries the play, intermittently breaking the fourth wall by addressing the audience: "Hi. How are you feeling today?" Then, slightly mocking, she becomes aware that it is a rhetorical question: no one is listening.

In a flashback scene, Chief of Oncology Dr. Kelekian dispassionately announces to Dr. Bearing in medical jargon that she has stage 4 metastatic ovarian cancer with tumors spreading quickly. She will receive eight months of aggressive but experimental chemotherapy, taking the full dose to significantly contribute to knowledge. She must be very tough, he says, as she signs an informed consent. Given this drastic news, Bearing retreats into her intellect, making a mental note to create a bibliography for studying her disease. Both doctors, as academics, commiserate on the state of their students' scholarship. Bearing learns the treatment for her insidious cancer will have pernicious side effects, but she views her plight as a challenge, taking comfort in applying her life-long discipline of exploring mortality in Donne's *Holy Sonnets*.

Twenty-eight years earlier, Bearing's mentor, E.M. Ashford, berates her for emotionally analyzing Donne's "Holy Sonnet Six," rather than reading it critically, with a correctly punctuated line: "And death shall be no more, Death thou shalt die." In this uncompromised version a mere comma, a breath, separates life from everlasting life. A future academic, Bearing eagerly returns to the library, although Professor Ashford suggests she join friends.

Back in the present, Bearing deals with the impersonal hospital regimen,

save for that treatment given by her compassionate nurse, Suzie. The emotionally detached young doctor, Jason, once Bearing's student, oversees the study protocol. Bearing answers his battery of questions, her famous wit intact, describing her progressive symptoms. Then Jason in a dehumanizing manner performs a pelvic examination, excitedly confirming her ovarian mass. Tests and treatments ensue, aligned with Bearing's nausea and vomiting. Her only visitors are medical students on rounds.

In another flashback, Dr. Bearing is five, reading Beatrix Potter's *The Tale of the Flopsy Bunnies* to her father, who explains the word "soporific" (sleepy) to her. Hence, her love of words began early and extended into the wonders of metaphysical poetry, as it does now less evocatively to medical terms. She has endured her outpatient chemotherapy but now rushes to the hospital shaking, feverish, and weak. Suzie suggests Bearing's dose be lowered; Jason insists on the full dose, which paradoxically may imperil her health but is done in the interest of knowledge.

The scene shifts, putting Dr. Bearing in the spotlight as she lectures on the metaphysical doctrine that teaches God forgives overweening intellect. Then Suzie is brought back into the scene, taking Bearing for more tests. Growing weaker, Bearing visualizes this to be the end, or in Donne's words: "the playes last scene." However, Jason enters. He explains his enthusiasm for studying cancer, but acknowledges he lacks the bedside manner he says only "troglo-dyte" clinicians are trained for. Bearing tries to tap Jason's emotions but is put off. Now a vulnerable patient, she realizes they both have exalted research at the expense of humanity. Thinking her confused, Jason denies the touch of human kindness she needs.

Bearing's own inhumanity to her students is highlighted in her teaching methods. A student who sees Donne as afraid, "so he hides behind all this complicated stuff, hides behind this *wit*," is put down. A consistently uncompromising teacher, Bearing flatly denies a student's paper extension due to her grandmother's death. This lack of compassion haunts her.

It is now the hospital's graveyard shift, and the agitated Bearing is sun-downing, so she creates a little emergency to get Suzie to come see her. Bearing is afraid; she is in need of comfort. Suzie shares a Popsicle with Bearing, and they talk about her advancing cancer and code status, noted in her chart as no heroic measures to restart her heart. Only palliative care managing her pain helps now. Jason enters the room as Bearing lapses into a drug-induced sleep.

As Bearing's former student, he tells Suzie that he had theorized Donne was never released from his salvation anxiety, and then he hastily adds, the sentimental meaning-of-life garbage is not for him.

In the all-important penultimate scene, retired Professor Emerita Ashford visits the semi-conscious Bearing, crawls into her hospital bed, holds her, and reads *The Runaway Bunny*, a book for her five-year-old grandson. Ashford gently kisses the sleeping Bearing and softly says upon departing, "It's time to go. And flights of angels sing thee to thy rest."

Then Jason stridently enters the room, notes his patient's lack of vital signs, and without checking her chart calls code blue. He frantically pounds her chest and performs mouth-to-mouth resuscitation. Suzie enters and announces his mistake: Bearing is no code. But the team he called swoops in, at first deaf to Suzie's pleas to stop. At last the violent activity ceases, and Jason feels true humility from making a medical mistake. The audience focuses on the bed as Suzie lifts the blanket from her patient. The surprise ending, as Bearing is enveloped into God's grace, must be experienced in the play (or book). House lights fade to black.

Literary Analysis

There is no mistaking who is in charge. Right from the beginning *Wit's* protagonist, Dr. Vivian Bearing, a tough-minded Renaissance literature professor, addresses the audience directly: "Hi. How are you feeling today?" This meta-theatrical device, breaking the fourth wall, makes the audience self-consciously aware of its role while preserving the illusion of unfolding action. Then Bearing abruptly says, "I think I die at the end." Such a declaration might reduce dramatic tension except her stoical wit fills the void, drawing the audience into the story in a way whimpering could not.

This analysis focuses on how *Wit* is a play about Bearing's journey toward death and how through the simple human kindness of others she finds meaning in life. Edson says her intent was to show a person gradually acquiring self-knowledge through the capacity for love, then ultimately receiving God's grace. In doing so, Edson walks the fine line between heartbreaking and humorous, knowing when something is funny you hear the truth a little louder. *Wit* is used to teach lessons on humanity in medical practices and procedures.

Bearing, a 50-year-old, postmenopausal, childless woman, fits the profile of an ovarian cancer patient, who typically ignores the disease's vague physi-

cal symptoms. Now in stage 4 with metastatic spread to distant organs, late detection means virtually no possibility of recovery. The play begins *in medias res* with Bearing, a researcher herself, signed up for an eight-month research protocol involving chemotherapy and high-dose experimental drugs given fictional names. To shrink her grapefruit-size tumor healthy cells will die along with the cancer. By consenting to the study she contributes to knowledge but suffers harsh side effects including hair loss, nausea and vomiting, compromised immunity, fatigue, and pain. Cancer in a no-nonsense university professor, now a research subject detached from the outside world, causes her to feel vulnerable.

Wit, a teaching play benefiting both actors and audience alike, at first portrays Bearing unsympathetically. She is a disciplined professor who has sacrificed friendship for intellectual achievement. Once ill, she wages a personal battle for survival by drawing on the only resources she has built up: the metaphysical poetry of John Donne (1572-1631). Donne was a seventeenth-century Anglican priest who became the dean of St. Paul's Cathedral in London in 1621. Family deaths—including his wife, Anne More, and several children—and his own extended illness caused him to write a series of spiritual meditations, *Devotions Upon Emergent Occasions*. In these essays and in his earlier *Holy Sonnets*, salvation anxiety questioning his faith is prevalent. He died after a lingering illness, but hope of salvation swept into his later years.

Bearing sees these sonnets as an intellectual exercise, analyzing their conceits, complex poetic devices including simile, metaphor, puns, hyperbole, and paradox. By integrating metaphysical poetry into the structure of her whole play, Edson creates some surprising comparisons, as well as elaborate parallels between dissimilar things in disparate fields of knowledge. For example, Bearing compulsively researches her medical condition, as she had Donne's *Holy Sonnets*, by compiling a bibliography, analyzing data, and so forth. Her running dialogue on metaphysical wit contrasts with the scientific jargon of ovarian cancer protocols, showing how Bearing tries to understand her illness through language. Set into the framework of the interrelated disciplines of literature and medicine come lessons on kindness and detachment, hope and grace, and ultimately life and death.

Wit is also a character-driven quest narrative. The others on Bearing's illness journey include cancer specialist Dr. Harvey Kelekian, an academic professor like Bearing who mirrors her emotional distancing from students.

They have an intellectual exchange that soon collapses under the stark reality of her dire situation. Told her prognosis, she signs an informed consent for the full dose of an investigational drug. Paradoxically, while this protocol may help to distinguish useful from useless treatment, contributing to knowledge and benefiting others, it might harm her.

Kelekian is obligated to inform Bearing fully about the drug, including whether it is FDA approved and has possible side effects. There is an ethical dilemma, grounded in Hippocrates' "first, do no harm," of delivering a non-beneficial dose too high to tolerate and keeping Bearing alive to reap medical data. Periodic review of Bearing's pain level and quality of life is imperative. At first, Bearing is as eager to help researchers as she has been to solve Donne's intractable mental puzzle. But along the way technicians treat her inhumanely, as a number rather than a person, causing her to become cynical. Bearing is terminally ill, in intractable pain from the cancer and its treatment, and alone.

Like Kelekian, his research fellow Dr. Jason Posner is in a relentless pursuit of knowledge, also forgetting his subject is a person like himself. Jason mindlessly asks her, "How are you feeling today?," a rhetorical question indicative of detached concern, or a medical professional's learned ability to compartmentalize the fear and anxiety that proximity to death brings. This formulaic greeting defensively disconnects him from a patient to maintain objectivity. Bearing feels proud that Jason, once her undergraduate student, is a dedicated researcher also. But as a scientist he is more interested in his patient's cancer cells than he is in her emotions, humiliating her during a disrespectful pelvic exam. He callously observes and records Bearing's suffering without offering solace.

Underneath it all, Bearing tries to mask her loneliness with bravissima repartee. For example, after taking her medical history Jason remarks, "Well that about does it for your life history," to which she wittily replies: "Yes, that's all there is to my life history." The sarcasm is lost on the busy doctor who had not chosen his words carefully. In the beginning both Bearing and her like-minded young doctor are dispassionate, but with increasing pain her arrogance gives way to fear. For Edson, once a hospital worker herself, kindness and humility need to balance out the fervor of scientific endeavor.

In stark contrast to the detached, fact-oriented Jason, nurse Suzie, although portrayed as a dim bulb, epitomizes a compassionate caregiver. Professor Bearing is a master teacher of the highest intellectual order with an

unsurpassed curiosity for words; however, having read about death her entire professional career, she does not have a fundamental understanding of compassion. It is modeled when Suzie, her unofficial patient advocate, meets her needs by listening and by showing simple human kindness. Of course, there is no way to know when given the bad news how anyone, whether the most learned theologian or a cancer-stricken child, will face a date with mortality. But with hope of recovery lost—the cancer is not in remission and only palliative measures are undertaken—Bearing appears to subsume her fear and accept her fate with equanimity. In the comfort of Suzie’s arms, she is getting “the medicine of friendship,” as put by Jerome Groopman’s patient in *The Anatomy of Hope* (135).

To assuage Bearing’s fear, Suzie calls the once erudite professor the familiar “sweetheart.” She applies skin lotion, adjusts her baseball cap to hide a bald head, and splits a Popsicle with her while having a talk about codes. Bearing signs a do-not-resuscitate order, thus taking some control over her life. It is in defiance of Jason’s and Kelekian’s desire to keep her alive to collect more research data. Ironically, in so doing Bearing has deprived death of its power over her, just as Donne hoped meditating on mortality and salvation would do for him. Suzie’s time-consuming interactions with Professor Bearing of course belie the fact that any nurse has at least five other jobs to do at once. But Edson’s portraying characters, like the kind Suzie and the rational Jason, in extremis, shows how, combined, they become an ideal caregiver. That is, the faculties of reason are not weakened by the growth of compassion and need not be mutually exclusive.

There is a moment of dramatic irony when Professor Ashford comes to visit Bearing. In a 28-year flashback, Ashford talks with her student, a young Vivian Bearing, about Donne’s “Holy Sonnet Six” and its profoundly simple meaning. Citing the authentic text, “And death shall be no more, Death thou shalt die,” Ashford states that “nothing but a breath—a comma—separates life from life everlasting.” How can a simple human truth and uncompromising scholarly standards inform each other, Bearing wonders. Her lifelong immersion in the *Holy Sonnets* sparked her use of wit, certainly; however, other than providing an intellectual challenge, it did not engage her in real life.

From the beginning it is clear Bearing is terminal. Feeling secure in life, she had ignored death until her illness became a short journey of self-discovery. In the play’s most sentimental, albeit realistic scene, Ashford crawls into bed with

the dying Bearing. Nestled in her mentor's arms, Bearing has regressed from intellectual posturing into childlike trust as Ashford reads to her not Donne but an uncomplicated child's tale, *The Runaway Bunny*. Simply put, no matter where the bunny runs to or hides, its mother will find it. It is a little allegory of the soul that shows God's love.

Eight months of cancer treatments seemed interminable, but Bearing's death is swift. Now others must tell her story. Jason enters Bearing's room, and seeing no vital signs tries to resuscitate her. Suzie knows she is no code and pleads for him to stop. Compassion dictates it is time to stop intervening. In her memorable deathbed scene, redemption comes to the flawed intellectual. As the soul departs the body in a transcendent scene that surprises, Bearing experiences grace through her ability to give and to receive love.

Margaret Edson's play is both intellectually challenging and emotionally immediate. Bearing is an unforgettable character whose intractable pain and dehumanizing end-of-life isolation is not unusual. She goes from being an intellectual scholar, vociferously in charge, to being friendless and quietly vulnerable. Donne's "death be not proud" is a major theme illustrating how humility precedes her courageous death. Other themes are preserving humanity in the quest for scientific knowledge, a search for meaning in life, and, of course, how wit, the play's salient characteristic, evokes both verbal skill and an ability to understand.

Besides wordplay that delights, surprises, and lightens the mood, *Wit's* metatheatrical elements and dramatic devices drive the play. An important storytelling feature, flashbacks to Bearing's childhood, to her student days, and to the linear trajectory—research, teach, publish—of her busy professor's life, contrast with seeing what her life is like during the last months and hours. Friendless, she is embroiled in a struggle for her life. Bearing's repeatedly addressing the audience is powerful, "Hi. How are you feeling today?," becoming a leitmotif that mocks detached concern, inbred into medical professionals who may not be listening anyway. Later her silence makes it necessary to shift to other storytellers. One scene flows into the next—there are no intermissions—with the hustle and bustle of diurnal medical schedules to be met, realistically portraying what a patient endures. A play of opposites—hope and kindness are revealed by showing characters without them—*Wit's* layered literature-and-medicine approach ultimately pits life against death.

Wit has been called sentimental and melodramatic, as well as been criti-

cized for portraying stereotypical medical professionals. Unfortunately, it is not unrealistic to the degree a recent study cites “woefully inadequate” care for end-of-life patients, including lack of respect, failure of physicians to communicate, and insufficient pain medicine and emotional support (Teno, et al. 291:88-93).

At first Bearing appears one-dimensional as a prideful professor, until cancer drains the life out of her. It is fully ironic that a scholar who studies illness and death seems not to have gained an iota of wisdom from her subject matter; rather, only Bearing’s obsession with language and retention of a semblance of Donne’s wit are easily communicated to the audience. Arguably, she learned from Donne’s writings neither courage nor his faith and beliefs. Only a caring nurse can tap into Bearing’s emotions to assuage her fears.

The hospital’s busy environment, with beeping technology and rushed medical personnel, is incongruently filled with silences, both metaphorical and literal, that disease and dying create. Critically ill patients need answers to end-of-life human rights’ questions, which candidly addressed can fill a dark room with light. In particular, the medical issues and ethics *Wit* evoke concern specific guidelines in research study protocol. For instance, Bearing is told she must be tough, then without further counsel she signs the informed consent. This is not a clinical research study report, but rather a play, so there is no mention of the risk-benefit ratio for her aggressive treatment nor an assessment of any conflict of interest. But, later on, insufficient discussions of palliative care measures result in increased pain, lessening the quality of her short life.

All institutions have their own ethics policies, and, hypothetically, readers might imagine a scenario in which Drs. Kelekian and Posner try to further use Vivian Bearing’s body to contribute to scientific knowledge—except Suzie, her last friend on earth, wants to retain her dignity and will not let them. However much *Wit* talks about death, though, it focuses more on Bearing’s struggle to reassess her life, and within rising life-to-death plot action many ethical questions are probed. Thereby *Wit* maintains its momentum from the beginning even through Bearing’s death. Wordplay provides relief, offsetting the comitragedy’s paradox that Bearing had to experience dying before kindness brought meaning to her life.

Topics for Oral and Written Discussion

- What different healthcare lessons do Rabbit Angstrom and Dr. Vivian Bearing teach? Apply the sayings *memento mori* and *carpe diem* specifically to each.
- Describe the medical professional-patient relationship that Vivian Bearing has with Dr. Kelekian and Suzie. Who helps? Who adds insult to injury?
- Correlate Jason's and Bearing's personality characteristics to show first their similarities and then their growing differences. What events cause each to turn pride into humility?
- Describe how *Wit* defines the role of communication in treating patients, specifying how listening, empathy, hope, humor, and silence relate to medical mistakes and/or patient quality.
- Distinguish detached concern from compassionate care in research protocols.
- Discuss Donne's meditation on humility and death, a major theme in *Wit*, and relate it to Bearing's saving grace.
- Describe ovarian cancer and the tests and legislation hoping to eliminate this silent killer.
- The subject of disease and death is done artfully in *Rabbit at Rest* and *Wit*, but the latter work is uplifting. Describe the literary devices, wit, dramatic irony, and audience metatheatrical self-consciousness, that keep the reader entertained so the dire subject remains palatable.
- In clinical trials does using experimental drugs that may not benefit the study participant and may even eliminate the last peaceful moments, sacrifice patient autonomy to advance research? Review IRB rules, regulations, and philosophies as set out in The Belmont Report and FDA regulations. Argue both sides.
- At last, what specific issues does *Wit* illuminate to help bring reform in end-of-life care, as *One Flew Over The Cuckoo's Nest* criticized mental institutions to bring sweeping changes?

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lashes out.

Glossary of Terms

Literary, Medical, and Scientific

These terms apply specifically to the readings in each chapter and to Western medicine; therefore, the definitions are limited in nature.

- abortion. The termination of a pregnancy. (See *Roe v. Wade* 1973.)
- absurdism. Philosophy espousing that human life is irrational, morally indifferent, and rendered meaningless by death.
- advance directives. Signed authorizations including medical powers of attorney in living wills designating another person, or proxy, to make healthcare decisions in your stead.
- affective family. The family entity evolving from freely expressed emotions.
- agriterrorism. Using agricultural weapons against livestock or grain fields.
- AIDS. Acquired immunodeficiency syndrome. A human immune-system disease caused by HIV infection transmitted through blood and bodily secretions, rendering its victim susceptible to life-threatening pneumonia and Kaposi's sarcoma. See also HIV.
- allegory. A narrative with a primary and secondary meaning. Related to fable and parable, it is understood on two levels. After reading an allegory, ask yourself, What is the story also about?
- alpha male. The top dog; exemplified by "Bull Goose Loony" in *One Flew Over the Cuckoo's Nest*.
- alterego. The second self or other side of the personality.
- alternative medicine. A mind-body-spirit approach to self-healing.
- amalgamate. Integrate, fuse, merge.
- amoral. Existing outside of a standard moral code of right and wrong.
- angina. Sharp, spasmodic pain attacks, indicative of heart disease. See also arteriosclerosis.
- angioplasty. An artery-clearing procedure (also known as cardiac balloon catheterization) to unblock clogged arteries that reduce blood flow to heart muscle, followed by clot-busting drugs.
- anthrax. An acute infectious disease caused by spore-forming bacterium *Bacillus anthracis*, infecting warm-blooded hoofed animals like cattle

and sheep but transmittable to humans. Characterized by external ulcerating nodules or lung lesions. See also bioterrorism.

a priori. Latin, meaning “from the former.” Derived from previous analysis; that is, deductive.

archetype. Primordial, structural elements of the human psyche (Jung).

ars moriendi. Latin, meaning “the art of dying.”

ars vivendi. Latin, meaning “the art of living well.”

arteriosclerosis. Arteries progressively blocked or narrowed by cholesterol plaque, causing a chronic oxygen and nutrient shortage to the heart, generating a “protest” or angina pain.

asylum. A mental institution or a sanctuary and inviolable place of refuge.

attention deficit hyperactivity disorder (ADHD). A condition characterized by behavioral and learning disorders.

autonomy. Each person’s individual right to respect and self-determination.

baby boomers. Americans born between 1946 (after World War II) and 1964 (when the birth rate peaked).

back shots. Painful spinal taps used to procure neurological evidence for study.

bad blood. The vernacular, or common term, for syphilis-infected blood.

bariatrics. From the Greek *baros*, meaning “weight” and *-iatrics*, meaning “medical treatment.” A branch of medicine relating to obesity and its treatments, including surgery.

Beat Generation. An American post-World War II literary and social movement promoted by 1950s writers Allen Ginsberg, William Burroughs, Jack Cassady, and Jack Kerouac, who attacked capitalism, the military, racism, consumerism, and the destruction of the environment. At the end of the 1960s hippies replaced beatniks as an alternative American culture.

bildungsroman. A novel about the main character’s moral and psychological growth.

bioethics. For biomedical ethics. It concerns ethical issues situated in scientific and healthcare disciplines. Van Rensselaer Potter coined the term in 1970 to describe “a new discipline that combines biological knowledge with a knowledge of human value systems” (Jonsen, *The Birth of Bioethics*).

biotechnology. The use of biological processes to produce a product or process for human use and benefit. For example, in molecular biology

it might include using microorganisms to perform specific industrial processes such as making beer and cheese as well as producing genetically altered bacteria to solve a horticulture problem or altering genes for recombinant DNA in an attempt to cure human diseases or in human reproduction processes. Often the stuff of science fiction, it merges science and engineering. See Schacter, *Issues and Dilemmas of Biotechnology*.

- bioterrorism. Terrorist acts using biological weapons like anthrax or smallpox.
- black satire. A genre ridiculing human vices with a turn toward the grotesque.
- blank verse. Common, unrhymed verse (usually in iambic pentameter [five feet per line, stressing the second beat of each foot]). Seen in Shakespeare's plays. Do not confuse blank verse with free verse (*vers libre*) that commonly has no fixed meter and number of feet.
- blood pressure. A pressure cuff placed around a patient's arm measures the "push" of the circulation system (i.e., the top, systolic, number measures the pressure of the heart pumping blood out; the bottom, diastolic, number measures the pressure in between pumps. A reading over 120 systolic means the heart is working too hard, stressing arteries, leading to heart disease, stroke.
- botulism. An inhaled or eaten bacterial toxin causing a muscle-paralyzing disease.
- brain death. As defined by the Uniform Determination of Death Act, brain death is "irreversible loss of all functions of the entire brain, including the brain stem." However, these activities of the brain may continue: 1) evoked potentials of auditory and visual pathways; 2) brain wave activity; and 3) neurohormonal regulation producing the arginine vasopressin hormone keeping fluid-electrolytes balance.
- bubonic plague. From Greek *boubon*, meaning "groin." A disease caused by the bacterium *Yersinia pestis* that is spread to humans by fleas from infected rodents and that causes swelling of lymph glands. Early symptoms include headache, nausea, vomiting, and aching joints, followed by fever and chills. In advanced cases the skin turns black, hence the alternate name Black Death. See also plague.
- Calvinism. The theological system of John Calvin and his followers, marked by emphasizing the sovereignty of God, the depravity of mankind, and the doctrine of predestination.

cardiac arrest. Sudden stoppage of the heart resulting in heart damage and death unless immediate resuscitation is achieved.

cardiac death. The irreversible loss of circulatory and respiratory functions, as defined by the Uniform Determination of Death Act. The traditional cardiopulmonary criterion of death is when blood stops circulating. Non-heart-beating protocols determine the exact time an organ can be harvested for transplantation to reduce degradation.

cardiopulmonary resuscitation. CPR. An emergency procedure involving external cardiac massage and artificial mouth-to-mouth respiration, attempting to restore blood circulation and prevent brain damage. Also known as “the kiss of life.” Consult American Heart Association for specific details.

carpe diem. Latin, meaning “seize the day.” Enjoyment of the moment without concern for the future.

catch-22. Derived from Joseph Heller’s novel, *Catch-22*; a contradictory situation, paradox, or absurdity in which the only solution is denied by a circumstance inherent in the problem and is therefore impossible to achieve.

catharsis. An artistic purging of emotions (pity and fear, for example), bringing about renewal.

chagrin. To be vexed or unsettled by; disappointed.

cholera. An acute diarrheal illness caused by intestinal bacterial infection.

cholesterol. A type of liver-produced fat found in the blood and used by the body to make hormones and build cell walls. Elevated cholesterol levels may increase the risk of heart disease. Cholesterol became a common household term in the 1970s.

chronic. Having a long duration or always troubling.

cingulotomy. Psychosurgery in which the trigeminal cranial nerve and intracranial lesions are targeted, often with a noninvasive Gamma Knife in an outpatient procedure to relieve intractable depression, obsessive-compulsive disorder (OCD), chronic pain, and other disorders.

civil rights and liberties. Every U.S. citizen is entitled to protection against infringement by the government; other specific rights include freedom of speech, press, religion, and assembly, as well as having property rights and equal treatment under the law. Refer to the U.S.

- Constitution's first 10 amendments (Bill of Rights) and Civil Rights Acts of 1957, 1960, 1964, and 1968.
- cloning. Creating a genetic duplicate through somatic cell nuclear transfer (SCNT).
- code blue. A signal for calling a hospital resuscitation team.
- colonialism. The state of being colonial; that is, a colony is subject to another government's policies, which may involve cultural oppression and the domination of one country over another.
- coma. A state of unarousable unconsciousness requiring a medical evaluation.
- Combine, The. A combination, especially in business or political interests; also, in agriculture, a grain-threshing machine. In *Cuckoo's Nest* the Chief believes the omnipotent Combine is a huge organization running the world, both inside and outside of the institution. A metaphor for repressive America.
- comitragedy. A dramatic mixture wherein comic elements offset the tragic.
- compassion. From Latin *com + pati*, meaning "to bear with" the consciousness of another's distress, together with a desire to alleviate it. Syn. Pity. See also patient.
- conceit. A fanciful and complex figurative literary device often incorporating simile, metaphor, oxymoron, hyperbole, and puns.
- concomitant. Accompanying in an incidental way.
- confidentiality. In the medical practitioner-patient relationship there is an express and implied oath standing since Hippocrates' time that no professional confidence shall be broken.
- counterculture. Alternative or against the prevalent culture; also expressed as bohemian, beat, hip.
- criminal insanity. As derived from the M'Naghten rule, the statutory definition states, "Criminal responsibility is excused where the actor, because of mental illness, does not understand the nature of his actions or does not understand that those actions are wrong." That is, he is criminally insane because he does not know the difference between right and wrong.
- cultural relativism. A philosophical concept that claims moral rules are customs specific to particular cultures, and that consequently no moral rules are universal. Advocates for international human rights, by their very nature, reject the primacy of cultural relativism.

- cyberterrorism. Terroristic acts (such as computer hacking and spreading viruses and worms) infiltrating computer systems in the nation's infrastructure (financial institutions, government databases, water delivery systems, etc.).
- cyborg. Cybernetic or bionic organism with automatic brain and nervous systems.
- cynicism. Showing a character or attitude of pessimism, misanthropy, gloom, and distrust. It incorporates a growing emotional distance and sense of futility.
- Dante's *Inferno*. Part I, Hell, of the *Divine Comedy*. Virgil conducts Dante (1265-1321) into Hell where damned souls suffer eternal punishments appropriate to their sins. In the anteroom reside those who did nothing in life, neither good nor evil. What follows are nine levels of Hell, descending conically into the earth.
- death. A legal term describing the cessation of brain function. Death usually occurs within two to four minutes of oxygen deprivation to the brain. Initially, the pupils of the eyes become fixed and dilated. Finally an electroencephalograph determines lack of brain activity.
- depression. A common depressive mood disorder ranging from mild to severe. When clinical, it is characterized by persistent sadness interfering with daily activities. Other symptoms include headaches, crying, loss of interest, feelings of worthlessness, sleeplessness, low energy, irritability, weight loss or gain, and, in extreme cases, difficulty in concentrating and a preoccupation with dying.
- detached concern. In a doctor-patient therapeutic relationship, as taught by Sir William Osler, a defense mechanism medical professionals use to dissociate emotionally from a patient.
- discipline. A field of study; imposing order.
- disease. A harmful medical condition inhibiting normal human functioning.
- DNA. Deoxyribonucleic acid. The nucleic acids that are the molecular basis of heredity reconstructed as a double helix. See also recombinant DNA.
- doctor-patient relationship. Emphasizes the human bond or partnership between doctor and patient that is essential to the art of medicine.
- domesticating death. Medicalizing or hiding death with intervening technology.
- do not resuscitate order. Called a "no code," a hospital order to respect the

- wishes of a patient not to undergo CPR or other resuscitation if his heart or breathing stops.
- doula program. A program to assign a companion to a friendless dying person; based on a Greek word for a woman who assists mothers in childbirth.
- dramatic irony. A tension built into the play, usually occurring when the audience understands the unfolding situation and its meaning but the characters do not.
- dystopia. Anti-utopia.
- Ebola virus. A Filoviridae named after a river in Zaire, identified in 1976, affecting humans and nonhuman primates with severe outbreaks and hemorrhagic fever; fatality rates of 90 percent.
- electroshock therapy (EST). Also called electroconvulsive therapy (ECT). Administering electroshocks to an anesthetized patient to relieve depression or mania.
- elegiac. Mournful, sad, expressing sorrow.
- elixir. A medical concoction capable of prolonging life.
- emigrate. To leave one's country to live elsewhere.
- empathy. Observing and vicariously understanding another's feelings but keeping a safe distance between yourself and the other; experiencing the feelings of another as your own.
- empirical thought. New scientific discoveries are often based on empirical thought springing from Aristotle's ideas: 1) examine what everyone says about the issue; 2) make several observations; and 3) derive general or probable principles on the matter from both 1 and 2.
- endemic. Prevalent in a particular area or environment.
- Enlightenment, the. Also called the Age of Reason. An eighteenth-century philosophical movement in which rational thought prevailed and individual happiness was paramount.
- epidemic. A contagious disease outbreak affecting a large number of individuals within a population.
- epistolary novel. The plot unfolds through a series of letters; note who is speaking to whom.
- ethics. From Greek *ethos*, meaning character. The discipline focusing on what is good and bad and what is one's moral duty and obligation. Ethics helps iron out conflicting values and principles to enable sound decisions, or at least ones with which a person can live.

- eugenics. The scientific improving of hereditary qualities of a race or breed; term coined by Francis Galton.
- euthanasia. Greek, meaning “easy or good death”; also known as mercy killing or doctor-assisted suicide. The practice of assisting in the death of terminal patients. The countries that have legalized it consider it a profoundly compassionate response to help end a life in suffering. While the action is not necessarily devoid of reason, it’s illegal in most of the United States.
- existentialism. A twentieth-century philosophy emphasizing that individual experience in an unfathomable but sometimes hostile or indifferent universe, while inexplicable, offers freedom of choice without knowing what is right or wrong or good or bad, and we are responsible for the consequences of our actions.
- fatalism. A doctrine advancing the idea that future events are fixed and that we are powerless to change them.
- female genital mutilation (FGM). An ancient ritual practiced mostly in some African, Middle Eastern, and Far Eastern countries that consists of two surgeries: excision and infibulation. Excision removes the outer genitals; infibulation sews up the vagina leaving a small opening for urination and menstruation.
- First World (Third World). Having electricity, sewers, and governmental policies that contribute to citizens’ health and welfare (not having the same). Or, highly industrialized Western nations, generally.
- fortunate fall. Latin, *felix culpa*. A theme in early American Literature, out of evil comes some good, in which a person’s painful experiences become instructive and beneficial. Put otherwise, a man’s tortured heart may lead to spirituality and an understanding of the humanity around him.
- fourth wall. A theatrical term describing the invisible wall between the audience and the on-stage actors. When an actor speaks directly to the audience, as does the narrator stage manager in Thornton Wilder’s *Our Town*, he breaks the fourth wall.
- Frankenfood. A food that has been genetically engineered.
- Frankenscience. A scientific creation that has the potential to destroy its creator. Examples include bioterrorism, cyberterrorism, and agriterrorism. The term has its origins in Shelley’s *Frankenstein*.

- free verse. Verse that has no metrical pattern but depends on internal rhyme, images, etc.
- free will. Freedom, without prior coercion or even divine intervention, to choose or decide the course of one's own life, whether another person agrees with you or not. For example, "I do this of my own free will."
- Galenic. Of or relating to the work of Galen (A.D. 130-200), the Greek physician who tried to synthesize what was known of medicine, developing a theoretical framework for explaining the body and its diseases. His anatomical and physiological discoveries included an understanding of heart-muscle action, kidney secretion, respiration, and nervous-system function. William Harvey's seventeenth century discovery of blood circulation was a major step away from Galenic medicine.
- galvanism. Relating to the 1790s work of Italian physician Luigi Galvani who jolted frog muscles with an electrostatic spark, demonstrating twitching nerve impulses. In *Frankenstein* galvanism implied the release, through electricity, of mysterious life forces.
- geriatrics. Medical specialty dealing with the diseases and problems specific to old people.
- globalization. The integration of nations that makes applying social, medical, and economic principles worldwide in scope.
- gluttony. Overindulgence, especially eating and drinking too much; one of the Seven Deadly Sins, along with pride, envy, anger, sloth, greed, and lust, codified after Jesus' death.
- golden years. Usually the retirement years when people should be free to explore life, ideally without health and money problems.
- gothic. Gloomy castles, threatening ghostly figures, and vulnerable heroes are all gothic elements, which Hawthorne and Poe used to reveal or to explain the supernatural.
- grace. In Christian theology, the unearned beneficence of God; that is, to become sanctified by a saving grace. God's grace becomes manifest in the salvation of sinners.
- habeas corpus*. Latin, meaning "you should have the body." A habeas corpus writ is issued to bring a person before the judge for a ruling as a protection against illegal imprisonment.
- hallucination. Sensory perceptions that occur without any objective stimulus;

- a mental disturbance common in schizophrenics.
- hallucinogenic drugs. Drugs that induce delusions, pushing the limits of physical and psychological endurance. LSD, for instance.
- head versus heart. Exalting the mind at the expense of the heart.
- hedonism. The doctrine that pleasure (happiness) is the chief good in life.
- heroism. The qualities of a hero, especially fulfilling a higher purpose or attaining a noble end.
- hippies. A 1960s counterculture group that took psychoactive drugs, wore psychedelic clothing, and as nonconformists reacted against wartime by engaging in peace demonstrations.
- Hippocratic oath. The oath taken by doctors, who pledge “to be useful; but, first, to do no harm.”
- HIV. Human immunodeficiency virus. Any retroviruses that infect and destroy immune-system T cells, becoming diagnostic of AIDS.
- holistic. Relating to the whole system rather than to the analysis or treatment of parts. For example, modern medicine attempts to treat the mind, body, and spirit.
- homeopathy. From Greek *homos*, meaning “similar,” and *pathos*, meaning “suffering.” The principle “like can cure like” is the basis of homeopathy and dates back to the Greek physician Hippocrates in the fifth century B.C. who believed patients could help themselves.
- hope. Expecting a good outcome. Hope, faith, and charity are three Christian virtues. The opposite of hope is despair.
- hubris. Exaggerated pride or self-confidence.
- humor. A quality appealing to the sense of the absurd or ridiculous; also, its use can be a patient’s coping mechanism.
- hypospadias. Abnormal urethral construction of the penis.
- ideology. The aims, assertions, and theories constituting a sociopolitical view.
- immigrate. To come into another country as a nonnative.
- implacable. Not capable of being changed, appeased.
- impostor syndrome. When a doctor feels he or she can never know enough.
- indolent. Habitually lazy; averse to activity.
- infection. The state produced by an infective agent in a suitable host.
- informed consent. A research participant must be adequately informed of and fully understand the risks and/or benefits of medical procedures and be relatively free from external influences before legal and ethical

consent can be freely given.

in medias res. Latin, meaning “in the middle of things.”

insanity. A legal term, meaning having a deranged or unsound mind and lacking mental capacity. It may remove the afflicted person from civil or criminal responsibility. It includes the mental disorder schizophrenia and excludes mental retardation.

institutional review boards (IRBs). Multidisciplinary research institution committees charged with reviewing human experimentation standards of practice and ethics.

intern. A medical school graduate who begins his or her first year of residency to gain supervised practical experience in a specialty (called a houseman in United Kingdom).

intersexuals. Also called hermaphrodites. People born with intermediate or ambiguous genitals, neither completely male nor female. Conditions that cause intersexuality include Klinefelter’s Syndrome (XXY chromosomes), congenital adrenal hyperplasia, androgen insensitivity syndrome, and a host of other syndromes. Intersexual characteristics are sometimes not determined until puberty.

in vitro fertilization. Combining sperm and ova in a glass dish to reap embryos.

irony. Using words to express the opposite of the literal meaning.

irresistible impulse. The legal principle stating that even if a person knowingly performs a wrongful act he or she can be absolved of responsibility if it was driven by an irresistible impulse, and therefore the person had a diminished capacity to resist performing the act. It was the legal principle used in the movie, *Anatomy of a Murder*.

Jim Crow Era. From 1870s to the 1950s discriminatory practices toward blacks (often local custom, not law) proliferated, in spite of the 1863 Emancipation Proclamation and 14th Amendment to the U.S. Constitution. They included discrimination in education, sports, hotels, restaurants, and so forth. For instance, blacks had to sit at the back of the bus, and drinking fountains were labeled “White only” and “Colored only,” with only water in the white fountain cooled. In most areas of the South, the practice did not end until the 1960s. The term derived from Jim Crow, a stereotypical black song-and-dance man.

laconically. Using concise, minimal words to make a point.

- leitmotiv. A recurrent theme in a work that represents an emotion or character.
- litmus test. An acid-base indicator test that turns red in acid solutions and blue in alkaline solutions.
- lobotomy. Psychosurgery. Surgically severing the nerve fibers connecting the brain's frontal lobes to the thalamus, a drastic technique thought to relieve specific mental disorders.
- logotherapy. Viktor Frankl's term for understanding that the search for meaning is man's primary motivating force.
- LSD. Lysergic acid diethylamide. An organic compound that induces psychotic symptoms similar to those of schizophrenia. In 1938 Swiss chemist Dr. Albert Hofmann first synthesized it from ergot fungus on the rye plant as a headache remedy, and he was not immediately aware of its hallucinogenic properties. In the 1950s American experiments began on humans, using LSD for treating alcoholism, schizophrenia, drug addiction, and behavior modification. The studies proved inconclusive. More recently, there has been a resurgence of interest in studying the use of LSD in terminal patients and to induce mystical experiences, but widespread use of so-called psychedelic therapies has not been approved by the FDA.
- Luddite. One of a group of early nineteenth-century workmen who destroyed laborsaving machinery as a protest; broadly, one who is opposed to technological change. The movement is probably named for the eighteenth-century Leicestershire workman Ned Ludd who destroyed a knitting frame. Today, the Unabomber, who targeted computer industry executives and researchers, is considered a neo-Luddite.
- Me Decade. Author Tom Wolfe coined this term to represent the period from 1971 to 1980, a self-centered time incorporating hedonism, hipness, and tragedy.
- medical humanism. A view or teachings that add professional values such as respect, empathy, and integrity to the technical and scientific know-how of medicine (clinical competence), combining into the art of medicine.
- medical humanities. An interdisciplinary blend of medicine and humanistic ideals to reveal the beauty in healing. In its subfield of literature and medicine, for instance, literature and scientific knowledge reveal a healing art, giving insight into the human condition.

- medical power of attorney. Authorizations directing another to make specific medical decisions in your stead.
- meditation. An attempt to focus thoughts for reflection and guidance.
- melancholia. A mental disorder with symptoms of depression, physical complaints, and possibly delusions.
- melodrama. A highly theatrical, sensationalized drama filled with intense action, extravagant sentiment, and agonizing situations; overdramatic.
- memento mori*. Latin, meaning “remember that you must die.”
- mental illness. Various disorders of the mind often caused by inherited genetic and learned environmental factors as well as external emotional stresses. Major categories include psychoses like schizophrenia and manic depression, neuroses like obsessive-compulsive disorder and hysteria, and personality disorders like drug dependence and alcoholism. Twenty-first century psychiatry is looking at causes in a patient’s brain biology and genetics, as well as childhood influences and daily stresses.
- mental retardation. Intelligence defects, a condition that affects 2 percent to 3 percent of the US population. Genetic advances help us understand abnormalities in the brain. Related terms include feeble-minded, moron, imbecile.
- Merry Pranksters. Philosophical existentialists, acting spontaneously against authority. Namely, they are Ken Kesey and other psychedelic-era compatriots such as Jack Kerouac.
- Metamorphoses*. A series of Latin verse tales written by Ovid around A.D. 8 dealing with mythological, legendary, and historical figures. See also Prometheus.
- metaphor. A figure of speech describing one thing in terms of another.
- metaphysical poetry. A seventeenth-century poetry defined in the work of John Donne that intellectually persuades, engages in discussion, and seeks psychological analysis through images, analogies, elaborate parallels between dissimilar things, and a dramatic event.
- metatheatre. A play self-consciously declaring itself theatre, especially with an actor speaking to the audience and breaking the fourth wall but maintaining dramatic illusion. Also “in-yer-face” theatre or theatre about theatre.
- miasma. A vaporous air quality believed to cause disease (e.g., a miasma of

tobacco smoke).

moral. Relating to principles of right and wrong behavior; ethical; virtuous.

morale. The mental and emotional level of psychological well-being.

morbidity. Afflicted with disease.

morbid obesity. Having a body mass index (BMI) of 40 or 100 pounds overweight.

mutilation. Cutting off or destroying a person's or animal's limb or other essential body part.

nanotechnology. The branch of engineering that creates incredibly small machines and materials dealing with things smaller than 100 nanometers (a metric unit of length equivalent to one billionth of a meter). This science and technology will allow us to snap together the fundamental building blocks of nature within the laws of physics. The far-reaching hope is that nanomedicine, by manipulating molecules, will eliminate all common twentieth-century diseases, pain, and suffering, as well as augment mental capabilities. Using devices the size of a few nanometers often involves the movement of a small number of electrons.

narcissistic. Love (sexual desire) for one's own body; egocentric.

narrative ethics. The use of narrative, stories in particular, to help medical professionals make ethical choices by illustrating in the literature clear examples of right or wrong decisions. In fictional stories and case histories the viewpoint is considered. Also known as literary ethics or narrative knowledge.

neurasthenia. An emotional disorder with psychosomatic symptoms involving fatigue and feelings of inadequacy.

nontherapeutic research trial. A research trial performed to benefit future patients, not those of the instant study.

Nuremberg Code. A code derived from the World War II Nuremberg Trials setting permissible standards for approved medical research.

obsessive-compulsive disorder (OCD). Besieged by a neurotic state of recurring obsessions and compulsions such as repetitive hand-washing or counting.

Odysseus syndrome. Derived from an episode in Homer's *Odyssey* in which Odysseus asks his men to tie him to the mast so he does not become crazed by the Sirens and have his power of reason affected. When

- applied by a bioethicist, it states that medical professionals should rely on a patient's decision made in his right mind.
- original sin. The state of sin in all human beings, according to Christian theology, that results from Adam's fall.
- Orpheus. In Greek mythology, a poet and musician who almost rescues his wife Eurydice from Hades by charming Pluto and Persephone with his lyre. In Gluck's opera, separated lovers journey underground to be united.
- pain. A subjective experience effecting an unpleasant emotion relating to real or imagined touch. Medicine keeps revising and improving ways patients can relate and describe their pain.
- palliative care. Improving the quality of life in patients, addressing physical, psychosocial, and spiritual needs; to soothe.
- pandemic. The outbreak of disease affecting a wide geographical area and a high percent of the population.
- Pandora's box. Derived from ancient Greek mythology, a box filled with implacable curses, but near the bottom there is hope.
- pantheism. A doctrine equating God with the forces and laws of the universe; toleration of the worshipping of all gods of different creeds, etc.
- Paracelsian. Relating to the teachings of Paracelsus (1493-1541) who believed the activities of the human body are chemical; health depends on the proper chemical composition of the organs and fluids; and the object of chemistry is to keep this essential balance.
- Paradise Lost*. John Milton's 1667 epic poem of the story of Adam and Eve, Lucifer and Satan, and good versus evil.
- passion. Emotions, as distinguished from reason, driving feelings and interests, promoting enthusiasm and even anger.
- pathography. Life writing on one's own illness.
- pathogens. A specific causative agent of disease, such as a bacterium or virus.
- pathology. The study of the nature of disease, especially what deviates from normal.
- patient. Bearing or enduring pain, difficulty, provocation, or annoyance with calmness (adj). One who receives medical attention, care, or treatment (noun). Archaic: One who suffers.
- patient advocate. Usually a hospital employee who responds to patient needs and complaints.

patriarchal medicine. The doctor is the all-knowing father; the patient is an inexperienced child.

pejorative. Having negative connotations; disparaging.

penicillin. A nontoxic acid produced by molds and found to be a useful antibiotic against syphilis and other bacteria. It was accidentally discovered by British bacteriologist Alexander Fleming in 1929.

personifying, personification. Attributing personal or human qualities to a thing or abstraction.

placebo. Latin, meaning "I shall please." An innocuous substance prescribed for mental relief to soothe; used in controlled experiments to test the efficacy of another protocol. Also known as a sugar pill.

plague. An extremely contagious bacterial disease caused by the bacillus *Pasteurella pestis*.

plug drugs. A new type of drug not related to genetic sequencing, but promising to halt flu viruses that invade the body.

polemics. Aggressively refuting the opinions and principles of another; a controversial argument.

poliovirus. An enterovirus occurring in several antigenically distinct forms causing human poliomyelitis.

post-traumatic stress disorder (PTSD). A term arising out of WWII when psychologists diagnosed returning soldiers with problems such as loss of concentration, sleep disturbances, nightmares, flashbacks, intrusive thoughts, and emotional stress.

predestination. The doctrine that all-knowing God infallibly guides those destined for salvation.

preimplantation genetic diagnosis. The technique for examining and preselecting embryos to identify sex, inherited diseases, and even cell donor capability. The selected *in vitro* fertilization embryos are then implanted in a womb. Also called embryo-sorting technique.

presumed consent. A term facilitating the harvesting of organs from the deceased unless individuals or families object. See also informed consent.

preternatural. Existing outside of nature; exceeding the natural; atypical.

prescient. Anticipating or having foreknowledge of events.

progenitor. Originator; direct-line ancestor.

Prometheus. Greek, meaning "forethought." In Greek mythology Prometheus,

a champion of men against the gods, stole fire from heaven and gave it to humans. As punishment, he was nailed to a mountain, where an eagle tore out his liver by day and it grew back by night. According to some stories, Prometheus was the creator of man, molding him from mud. See Ovid's *Metamorphoses*.

Prometheus syndrome. Relates to the Greek legend of Prometheus who created man and gave him fire. This concept relates to man's invention of technology, altering nature, including man, without thinking ahead about the consequences.

protocol. A detailed plan for scientific experiments, treatments, and procedures.

psoriasis. A chronic skin disease characterized by red patches with white scales.

psychopathic personality. An emotional and behavioral disorder involving realistic perceptions but often characterized by antisocial and immoral behavior, with immediate personal gratification in criminal acts, sexual perversion, or drug addiction.

psychosocial. Involving both psychological and social aspects, for instance as in mental health analysis or marriage adjustment.

psychosomatic. Physical symptoms caused by emotional disorders.

psychotic. Losing contact with reality; mental derangement.

Public Health Service (PHS). An agency of the U.S. government established in 1798, now with the Department of Health and Human Services, that promotes and safeguards national health and coordinates services internationally.

puerperal fever. Childbed fever or puerperal sepsis. An infection of the placental site leading to fever, which in serious cases may infect the uterine wall and then pass into the bloodstream leading to death. Dr. Oliver Wendell Holmes first identified it in *The Contagiousness of Puerperal Fever* (1843). Dr. Semmelweis theorized on prevention.

Puritanism. A doctrine preaching strictness and austerity especially in matters of religion and conduct. Puritans were a sixteenth- and seventeenth-century Protestant group in England and New England.

quotidian. Occurring every day; commonplace.

rationalism. Emphasizing man's ability to think for himself; it values reason and experience over sense perception to gain knowledge.

recombinant DNA. In vitro genetically engineered DNA spliced together from various organisms.

- regenerative medicine. A new field of medicine researching how to restore diseased organs with new healthy cells.
- research subject (research participant). A person from whom research data are obtained; a social science term describing a person who may influence study design and give full and informed consent to being studied.
- road literature. A literary genre in which the protagonist on a trip faces challenges along the way. Examples include Homer's *Ulysses*, Jack Kerouac's *On the Road*, Tom Wolfe's *Electric Kool-Aid Acid Test*, Mark Twain's *Huckleberry Finn*, and the movie *Thelma and Louise*.
- romantic love. A mode of sentimental feeling traced to eighteenth-century novels such as Goldsmith's *The Vicar of Wakefield* (1766) and to the natural world described by the poets Keats, Coleridge, and Wordsworth. A key element is sexual passion, with the premise that your mate's personality is ideal, without normal faults, and only one person in the world can be your soul mate. Feminist Mary Wollstonecraft regarded romantic love as an invention of male novelists adopted to mask sexual lust.
- sandbag. To conceal or misrepresent one's intent; to take advantage of.
- sardonic. Scornful, mocking.
- satire. A literary device holding up human vices and follies to ridicule or scorn.
- schizophrenia. A psychosis characterized by loss of reality and deterioration in everyday functioning. Two million Americans with schizophrenic psychosis have lost touch with reality, experiencing hallucinations and delusions and often expressing hostility. Probable causation is a complex interaction between heredity and environment.
- science fiction. A literary genre questioning man's relationship to technology and science. Science fiction writers who imagine change tend to horrify us and pique our interest, preparing us for the future.
- scourge. The cause of great affliction; sometimes used interchangeably with "plague."
- secular humanism. A humanistic philosophy antagonistic to traditional religion.
- self-actualization. The process occurring in the construction of identity; self-knowledge.
- self-esteem. Confidence and belief in oneself.
- sensual. A carnal gratification of the senses.

sentimental. Resulting from feeling rather than thinking; emotional rather than rational.

sex-assignment surgery. For instance, genetically male babies born with ambiguous genitals are surgically transformed into girls by reforming the testes and secondary sexual characteristics and given female hormones at puberty. In the 1950s American psychologist John Money believed babies, a blank slate, can environmentally change gender identities (nature versus nurture). In the 1970s, genetic testing called his view into question.

shaman. Wound healer. A person, usually a priest, who uses magical powers and belief in gods, demons, and spirits to cure the sick.

silver bullet cure. Also called magic bullet. A miraculous solution to a complicated problem.

small pox. A highly contagious disease with no cure caused by the variola virus. Within two weeks of exposure symptoms include high fever, fatigue, headache, and backache. Two to three days later a skin rash develops enlarging into pustules (pox) and scabs. During the second week death occurs in 30 percent of the infected. It is spread by infected saliva, by face-to-face contact, or through contaminated fabric. Its warfare use dates to 1750s British soldiers who deliberately spread smallpox among American Indians on contaminated blankets. Vaccination wiped out smallpox in developed countries in the mid-twentieth century. Routine vaccinations ended in the United States in 1972 because the risk of side effects outweighed the risk of being infected with the disease. The last known public case was in Somalia in 1977. Worldwide vaccinations stopped in 1980, making it ironic that medical victory over the disease leaves populations vulnerable to bioterrorist attack.

Social Darwinism. Classifying a cultural system on Charles Darwin's nineteenth-century principles of survival of the fittest and natural selection; individuals or countries fail due to inherent weakness. That is, social policy should allow the weak and unfit to fail and die.

social sciences. Social studies. They comprise the scientific study of the relationships humans have within the world, including how a sense of responsibility and civic competence develops.

solipsism. Each of us is the center of the universe.

soporific. Sleepy; causing sleep.

soul. The seat of faith where man and God connect and into which His grace comes.

soul pain. Emotional in nature, such as described in DeVries' *Blood of the Lambs*.

sterilization. To deprive of reproducing children; includes vasectomy or salpingectomy.

sundowning. Unsettled behavior evident in patients in the early evening, including agitation or restlessness.

symbolism. An object standing for something else (e.g., the flag symbolizes patriotism).

syphilis. A chronic, contagious usually venereal and often congenital disease caused by a spirochete. Left untreated, it produces chancres, rashes, and systemic lesions in a clinical course with three stages over many years (primary, secondary, and tertiary syphilis).

systemic lupus erythematosus. An autoimmune disease with no known cure or cause that runs in families. The body harms its own healthy cells and tissues, leading to inflammation and tissue damage, including to the joints, skin, kidneys, and heart. Treatable symptoms include extreme fatigue, arthritis, fever, reddish raised skin rashes, and kidney problems.

taboo. The cultural mandate not to discuss a topic or to practice an act (e.g. incest).

tabula rasa. Latin, meaning "blank tablet." A young mind is capable of absorbing new knowledge.

technology. From Greek *teche*, meaning "art, skill." The practical application of knowledge in a particular area.

telemedicine. Rural medicine administered through broadband interest systems to provide health care to sparsely populated areas where medical professionals are scarce.

terminal illness. A diagnosis of no hope of recovery.

terminal wean. Patients with brain function who would die without life support.

tetralogy. Four in a series; a quartet.

thanatology. The study of death and dying.

totalitarian. Authoritarian; an autocratic leader having strict, centralized control.

- toxic. Poisonous. Some toxic plants include mistletoe, hyacinth, daffodil, and narcissus.
- tragedy. A literary genre describing a situation engendering pity and fear so that it can bring catharsis or a purging of these emotions.
- tragic flaw. A character flaw (or error) leading to downfall (e.g., Dr. Rappaccini's hubris).
- tragic hero. One whose misfortune is brought on by misjudgment, through error or flawed character, and whose life goes from happiness to anguish.
- tuberculosis. A communicable disease of the lungs caused largely by the tubercle bacillus and characterized by allergic and toxin symptoms, including chest pain and a bad cough that progresses into coughing up blood.
- unpardonable sin. Failing to ask for forgiveness; not repenting.
- unquiet dead. The brain dead kept alive on machines for organ harvesting or research.
- vaccine. A preparation administered to produce immunity to a particular disease; made of killed microorganisms, living attenuated organisms, or living fully virulent organisms.
- vivisection. Cutting into or operating on a living animal.
- West Nile virus. A virus identified in Uganda in 1937; it invaded New York City in 1999. Transmitted from birds to mosquitoes to humans, often causing the elderly or immune-challenged to contract brain encephalitis and/or a polio-like virus and die. Not spread from person-to-person.
- wit. A mental ability or verbal skill evoking laughter or understanding.
- women's studies. A multidisciplinary academic program emphasizing the contributions of women in society, history, politics, the humanities, arts, and sciences.
- worried well, the. People overanxious about their health (first used in the late 1980s).
- xenotransplantation. From *xeno* (guest). Cross-species transplantation.
- yellow fever. A warm-region, sudden onset, acute infectious disease with prostration, fever, albuminuria, jaundice, and hemorrhage; caused by virus transmitted by yellow-fever mosquito.