

Code numbers For
Replacement Panels

THE AMERICAN LIBRARY ASSOCIATION
FRANKENSTEIN: PENETRATING THE SECRETS OF NATURE
PANEL 1 THE BIRTH OF FRANKENSTEIN

FRANKENSTEIN

1A

THE BIRTH OF FRANKENSTEIN



For nearly two hundred years, the story of *Frankenstein*—the book, the monster, the scientist—has gripped our imaginations and haunted our nightmares. Though Mary Shelley (1797–1851) was only 20 years old when *Frankenstein; or, The Modern Prometheus* was first published in 1818, she posed profound questions in her novel about individual and societal responsibility for other human beings. To make her point, she used the scientific advances of her era and the controversy surrounding them as a metaphor for forces of unchecked power and self-serving ambition, and their effect on the human community.

This exhibition explores the woman and the world that gave birth to *Frankenstein*. It examines how playwrights and filmmakers transformed the *Frankenstein* story into one of the Western world's most enduring myths. Finally, it considers how Mary Shelley's contemporary audience frequently provided a framework for discussion about contemporary biomedical advances such as cloning, which challenge our traditional understanding of what it means to be human.

PENETRATING THE SECRETS OF NATURE

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A Dark and Stormy Night

In 1816, Mary Shelley and her friends, the poet Percy Bysshe Shelley, visited the estate that had once, situated in a hillside near the ruins of Lake Geneva. The two, along with other guests, decided to spend much of their time indoors at the nearby site of the great Lullman, where they could discuss literature, politics, and science. One night, a storm raged over the sea and the guests took part in a competition to write a terrifying tale. Inspired by the storm, Mary Shelley wrote the novel *Frankenstein; or, the Modern Prometheus*, in which she introduced "the hideous phantom of a man constructed, not born, in the workshop of some powerful agent, slow types of life." Mary Shelley began writing *Frankenstein*.

Frankenstein: Penetrating the Secrets of Nature was developed by the National Library of Medicine in collaboration with the American Library Association. The exhibition is based upon a major exhibition produced by the National Library of Medicine in 1997–1998.

This exhibition has been made possible by major grants from the National Endowment for the Humanities, dedicated to expanding Americans' understanding of human experience and cultural heritage, and the National Library of Medicine, dedicated to making the most accurate and up-to-date health information freely available to all.

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Exhibition literary consultant: R. V. T. Russell, Ph.D., American University, Washington, DC

Exhibition design: Charles Hodge, American Inc., Washington, DC; Chicago, IL

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Mary Shelley and Her Family

The literary life attracted Mary Shelley from an early age. Although her mother, Mary Wollstonecraft, published literature and edited a *Journal of Education*, she was determined to give her daughter a more practical education. In 1797, she moved to a private school in London. Mary Shelley's father, William Godwin, was a political philosopher and a friend of Mary Shelley's. He was a member of the French Revolution and a friend of Mary Shelley's. He was a member of the French Revolution and a friend of Mary Shelley's.

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An Extraordinary Education

Mary Shelley's educational upbringing included an education that focused on the development of the imagination. In her early years, she was introduced to great works of literature, history, and philosophy, and she studied French and Latin. Her father, William Godwin, was a member of the French Revolution and a friend of Mary Shelley's. He was a member of the French Revolution and a friend of Mary Shelley's.

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A Writer's Life

The first edition of *Frankenstein* published anonymously in 1818. Mary Shelley revised her novel twice for this compelling story about a scientist who creates a monster from dead matter. She also wrote five other novels, a novella, travel books, biographies, short stories, essays, and poetry. In the four years following the publication of *Frankenstein*, however, the author's personal life was the subject of intense criticism and her husband's disapproval of her writing.

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Frank 2



Frank 1



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FRANKENSTEIN: PENETRATING THE SECRETS OF NATURE
PANEL 2 SCIENCE AND THE BOUNDARY OF LIFE

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THE AMERICAN LIBRARY ASSOCIATION
FRANKENSTEIN: PENETRATING THE SECRETS OF NATURE
PANEL 3 FINDING FRANKENSTEIN; OR THE MODERN PROMETHEUS

PENETRATING THE SECRETS OF NATURE

Frank 1

Frank 2

FRANKENSTEIN

FINDING FRANKENSTEIN; OR, THE MODERN PROMETHEUS

Who was Victor Frankenstein? Why did Mary Shelley write the white, 20th-century Prometheus, for the North? Was Shelley's monster the same monster who is now as visible in contemporary popular culture?

More than a simple parable of a scientist gone mad, *Frankenstein* uses scientific themes as a framework for exploring larger political issues of power, responsibility, and justice in society. In interlocking stories, Mary Shelley transforms an ideal cherished by her and her circle—enlightenment through the attainment of knowledge—into a more complex examination of the good and the evil that may result when knowledge and power are used univocally and for personal gain.

Shelley's classic novel begins and ends in the icy waters of the Far North. At the start of the novel, Victor Frankenstein has pursued his monster to the frozen Arctic, where he relates his strange tale to polar explorer Robert Walton. Frankenstein's creature was not born a monster. He began life as a rational being. Abandoned by his "father," Victor Frankenstein, the creature undertakes a process of self-education and a search for human connection. Alone, he learns to speak, read, and ponder his "accursed origin." Only after he fulfills his human relationship and is accepted by society does he turn to rage, revenge, and murder. The tragedy of Victor Frankenstein is the result of his utter failure to take responsibility for his creation.

In substituting her novel *The Modern Prometheus* Mary Shelley drew upon the mythological figure of the Greek Titan, Prometheus, who was punished by Zeus for giving fire, a symbol of knowledge, to humankind. For Shelley and her contemporaries, Prometheus represented the human desire to comprehend the universe. In her transformation of the Prometheus myth, Mary Shelley created a new and compelling story about discovery that is carried out for private gain and personal ambition, rather than for the enlightenment of all.

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Paradise Lost

Hideous Progeny

A Monstrous Mate

Fire and Ice

Midnight Labors

Responsibility for Creation

Blasted Hopes

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FRANKENSTEIN: PENETRATING THE SECRETS OF NATURE
PANEL 4 THE TRANSFORMATION OF A MONSTER

FRANKENSTEIN

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THE TRANSFORMATION OF A MONSTER

From its first appearance in 1818, Mary Shelley's *Frankenstein* both fascinated and repelled audiences. Her story, moreover, attracted other creative artists, who freely adapted the novel for audiences in England, America, and Europe. As early as 1823, and continuing into the next century, the monster underwent a transformation in which he lost much of the intelligence and emotional complexity Mary Shelley had given him. From a sensitive, reasoning, and articulate being whose crimes resulted from his mistreatment at the hands of humanity, the creature mutated into a grunting brute, whose violent and cruel nature could only be understood as the product of science daring to usurp the god-like power of creation. Almost as quickly, the name "Frankenstein" came to represent the monster as much as his maker. Although Mary Shelley's monster was rarefied, many playwrights, writers, and the general public since then have called the monster "Frankenstein."

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Frank 1

PENETRATING THE SECRETS OF NATURE

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Frank 2



Code numbers For Replacement Panels

THE AMERICAN LIBRARY ASSOCIATION
FRANKENSTEIN: PENETRATING THE SECRETS OF NATURE
PANEL 5 FRANKENSTEIN IN AMERICA

Frank 2

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FRANKENSTEIN IN AMERICA

What makes the monster from *Frankenstein* immediately recognizable to people of all ages in America? Why has Mary Shelley's book remained in print in the United States since 1865?

Now a vibrant element of American popular culture, the image of the monster has been appropriated widely to entertain and to market consumer goods to the public. He appears in toys and children's games, plastic model kits, coloring books, Halliwell's costumes, cartoons, lunch boxes, Christmas ornaments, breakfast cereals, video games, and scores of other products. Film inspired by the Frankenstein monster continues to be made. From *I Was a Teenage Frankenstein* in the 1950s to *Mary Shelley's Frankenstein* by Kenneth Branagh, in the 1990s, the story continues to be reworked for each new generation of filmgoers. But the image and story of the monster are much more than consumer commodities. They continue to be people articulate anxieties about the possibility of science changing the traditionally accepted boundaries of nature.

From Classic to Comic Book

Between 1865 and 1942, American publishers issued some 79 editions of the original text of *Frankenstein*. In 1924 a British edition was published. The fact that Mary Shelley's novel is now available in a wide variety of formats and publications, from illustrated comic books, to leather-bound volumes, to full text on the Internet, attests to its *enduring appeal to readers of all*

THE FRANKENSTEIN FRAMEWORK

In the twentieth century, science and technology gained ascendancy in American social and cultural life. Although Americans welcomed many of the changes caused by scientific advances, some worried about society's ability to retain control of technologies that challenged their understanding of what it means to be human.

The early decades of the century, as in Mary Shelley's day, were filled with speculation about the origins of life and the boundaries between life and death. In the 1930s, when Universal's *Frankenstein* was thrilling audiences, there was also intense public interest in achieving immortality through advances in science and medicine such as organ transplants, artificial organs, mechanical respirators, and other devices.

Some of the most startling developments involved reviving the dead—and those near death—using newly developed cardiac pacemakers, and being able to maintain organs outside the body for research or transplantation. Excitement about medical breakthroughs was accompanied by questions about the ethics of experimentation, the "natural" limits of research, and the definition of "human." The development of devices such as artificial respirators caused fears that people might be kept alive against their will. Throughout the century, the Frankenstein story offered a compelling framework for the public to articulate its uneasiness about unregulated scientific ambition and the nature of scientific responsibility.

Conquering Death

More than one hundred years after Italian physician Giovanni Aldini applied electricity to the bodies of dead animals, and humans to determine movement, the American public was fascinated by studies about scientists' efforts to re-animate the dead. One of the researchers who captured public attention was chemist Robert Cathish, who reportedly animated a dog to life. "The first that such experimentation on a human being would evolve a fabled Frankenstein monster," noted one reporter in the 1930s, "prevented Cathish from accepting offers from scores of people willing to sacrifice themselves 'as a test of man's power over life.' The Prometheus quest for power over life and death would remain a dream, not a reality."

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entertainment or education, with its goal to expunge social unrest and rising crime rates. Many Americans supported the eugenics movement, which encouraged people with "good" genes to reproduce and tried to prevent the "unfit" from having children. In the 1920s, American state fairs hosted "Fitter Families" and "Better Babies" contests, in which families competed—like Holstein cattle and Jersey cows—for "best in show."

Frank 1

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A "Glass Heart"

The Criminal Brain

In her novel, Mary Shelley's monster turns to violence after he is abandoned by his creator and rejected by human society. In the 1931 film, *Frankenstein* the monster is violent because he has received the brain of a criminal instead of the brain of a distinguished scientist. During the first part of the twentieth century, researchers looked for physical markers of criminality in the brain and other parts of the body.

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PANEL 6 FRANKENSTEIN AND THE FRONTIERS OF SCIENCE

Frank 2

6A

FRANKENSTEIN AND THE
FRONTIERS OF SCIENCE

During the last decades of the twentieth century, the pace of biomedical innovation intensified. So too did the concern about society's ability to retain control of the dazzling new technologies that challenged our understanding of what it means to be human.

The profound questions about human identity and scientific responsibility raised by these new technologies has prompted calls for public dialogue and expert guidance. In November 2001, President George W. Bush created a new ethics commission—The President's Council on Bioethics—to advise him and his staff on the ethical and policy issues that arise from biomedical innovations such as cloning and stem cell research.

This group and, indeed, all Americans, face serious deliberation about these issues. Should technologies like cloning be restricted? Should stem cell research that shows promise against disorders such as Alzheimer's disease, juvenile diabetes, and Parkinson's disease, be limited? Who should determine the answers to these questions that challenge our understanding of the beginnings of human life and the ends of scientific discovery?

6B



Crossing a Barrier

The Greek word *metastasis* means "transfer," the transplantation of organs and tissues from one species to another is termed a "xenotransplant," "xenotransplantation." For a few decades (1970s) patients, xenotransplantation offers one solution to a chronic shortage of human donor organs. But some argue that crossing the species barrier represents another example of "Frankenstein science." When the infant identified in the media as "Baby Fae" received a baboon heart transplant in 1984, critics labelled the procedure "insouciant, even arrogant and unsupported by medical evidence." It was, in fact, a useful. Other objections have come from scientists who warn about the potential for transmitting diseases from animals to humans. At this time, no one can safely predict that xenotransplantation will become an accepted medical practice.

6G

"Secrets of Nature" Revealed

In 1990, a consortium of nation and scientific organizations created the Human Genome Project, devoted to identifying all human genes and generating a complete sequence of human DNA by the year 2005. The initial sequencing of the human genome, which is the genetic blueprint of human beings, was completed in 2000 through the International Human Genome Project and Celera Genomics, a private research consortium.

The decoding of the human genome provides hope for diagnosing, preventing, and treating diseases that have long plagued humankind. Many share Mary Shelley's dream that this research will be used wisely—and the science will "save life where death had desecrated the body to conception."

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“They may come up with a disease that can’t be cured, even a monster.”

6C answer to Dr. Frankenstein’s dream?

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The Cloning Controversy

News reports in 1997 that Scottish researcher Ian Wilmut had successfully cloned an adult sheep (named Dolly) provoked world-wide speculation about the implications of this dazzling new technology for humans. "The most immediate medical consequence of cloning the Scottish sheep Dolly," notes *Washington Post* reporter, "has been a major outbreak of the Fraxthorstein syndrome." Cloning, perhaps more than any other area of biomedical research,

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"Frankenscience"

References to "Frankenfoods" and "Frankenfoods" now appear frequently in the media and on the Internet. Biotechnology companies have invented genetically-modified crops that promise more nutritious and less expensive foods. But not everyone views this as progress. Critics of genetically-engineered foods warn about unforeseen environmental and health hazards caused by altered plants and organisms.

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Looking Forward

The stunning scientific advances of the last decade raise difficult ethical and policy questions. What, if any, are the constraints on scientific inquiry? Who should decide the limits of acceptable biomedical research?

There are no easy answers to these questions. In the subtitle of her novel, *Frankenstein, or, The Modern Prometheus*, Mary Shelley invoked the myth of Prometheus, the Greek Titan punished by the gods for stealing fire and giving it to humankind. For Shelley and her circle, Prometheus was a symbol of enduring

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the state wherein they are silent through ignorance, to that in which they are virtuous through wisdom." Although the scientist Victor Frankenstein failed to take responsibility for his misdeed(s) monster, Mary Shelley has for two centuries offered the Prometheus possibility that humanity could make responsible choices.

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The Visible Humans

In 1953, the National Library of Medicine created "The Visible Human Project" for the benefit of research and the public throughout the world. A prisoner who had donated his body to science and a woman donor became the Visible Humans. Thousands of cross-section sections of their bodies were photographed. Then the images were digitized and made available on the Internet through the Library's Web site, www.nlm.nih.gov. The Visible Humans have been used to teach young doctors medical procedures and to train physicians in novel surgical techniques.

Unlike Victor Frankenstein, who labored in secret, using underbody paths to create a monster, scientists and the public alike now have access to a wealth of scientific information and research results through multitudes of print and other media outlets.

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