

# INTRODUCTION

CHARLES E. ROBINSON

In this novel written by Mary Wollstonecraft Shelley (1797–1851), Victor Frankenstein (never called “Dr.” Frankenstein) leaves behind his idyllic childhood and Edenic Geneva, goes to university, studies the latest technologies and medical procedures, creates an unnamed monster,<sup>1</sup> and suffers the dangerous consequences of his pursuit of knowledge when his creature destroys his brother William; his wife, Elizabeth; and his best friend, Henry Clerval. In short, *Frankenstein* is a cautionary tale. And it is now for the first time published by an institute of technology for the purposes of educating students who are pursuing science, technology, engineering, and mathematics (STEM). (Some readers may wish or need to substitute *medicine* for *mathematics* in this acronym.) Up until this edition, *Frankenstein* has been primarily edited and published for and read by humanities students, students equally in need of reading this cautionary tale about forbidden knowledge and playing God. And to embrace the largest audience, we are publishing what may also be defined as a “STEAM edition” of Frankenstein, the A edited in for the arts, design, and humanities.

STEAM provides us a launching point for an analysis of *Frankenstein*, for its action takes place in the 1790s, by which time James Watt (1736–1819) had radically improved the steam engine and in effect started the Industrial Revolution, which accelerated the development of science and technology as well as medicine and machines in the nineteenth century.<sup>2</sup> The new steam engine powered paper mills, printed newspapers, and further developed commerce through steamboats and then trains. These same years were charged by the French Revolution, and anyone wishing to do a chronology of the action in *Frankenstein* will discover that Victor went off to the University of Ingolstadt in 1789, the year of the Fall of the Bastille, and he developed his creature in 1793, the year of the Reign of Terror in France.<sup>3</sup> Terror (as well as error) was the child of both revolutions, and Mary’s novel records the terrorizing effects of the birth of the new revolutionary age, in the shadows of which we still live.

*Frankenstein* presents us with a world full of shadows and darkness and terror: we frequently read these three words and their variants in the text of *Frankenstein*; we encounter the visuals of these three words in the many hundreds of stage and screen adaptations of this novel, often figured by the Boris Karloff neck-bolted monster; and we experience the shadows and darkness and terror when we read the many news reports about cloning, genetic engineering, Frankenfoods, and the most recently unearthed Frankenvirus announced in September 2015. All of these references derive their metaphoric origin from a teenager named Mary Godwin, who eloped to the Continent with the already married poet Percy Bysshe Shelley

(1792–1822) in late July 1814, when she was sixteen; began writing her novel about Victor and his creature in Geneva in mid-June 1816, when she was eighteen; married Percy in London in late December 1816 after his first wife, Harriet, committed suicide; finished her novel in April or May 1817, when she was nineteen; and published it on 1 January 1818, when she was twenty years old. And this STEAM edition of the novel is being prepared exactly two hundred years later in commemoration of the bicentennial of this young woman’s achievements.

It needs to be firmly stated here that Mary was not a Luddite opposed to new technologies. In fact, she was very interested in scientific matters, probably as a consequence of her parents, Mary Wollstonecraft (1759–1797) and William Godwin (1756–1836). Wollstonecraft was a famous political philosopher and feminist who died eleven days after her daughter was born as Mary Godwin, but the daughter was nurtured by reading her mother’s works, including *Thoughts on the Education of Daughters* (1787) and the more famous *Vindication of the Rights of Woman* (1792), in which she argued that elementary school girls of the period should perform the simple experiments in “natural philosophy” or science that boys of the same age performed. Mary also received a scientific education indirectly from her father, a famous novelist and political philosopher who was visited at home by many famous writers and intellectuals, including the scientist and inventor William Nicholson (1753–1815). As a young girl, Mary almost certainly met Nicholson during his many visits to Godwin up through February 1810, and she likely knew of his publications, which included *The First Principles of Chemistry* (1790; third edition, 1796) and his earlier student textbook *Introduction to Natural Philosophy* (2 vols., 1782; fifth edition, 1805). As William St. Clair has remarked in his authoritative biography of the Godwins and the Shelleys, William Godwin turned to Nicholson “for information on the latest theories in chemistry, physics, optics, biology, and the other natural sciences” and for “his advice on scientific method” ([1989] 1991, 61).

When Mary met Percy Shelley, she learned that he had been encouraged in his scientific studies at Eton by Dr. James Lind (1736–1812), who was a member of the Lunar Society, a club that included scientists such as James Watt; the physician and poet and natural philosopher Erasmus Darwin (1731–1802), who published *Zoonomia* (1794–1801), a medical-philosophical treatise dealing with such matters as reproduction, development, sensation, and disease; and the dissenting minister and political activist Joseph Priestley (1733–1804), who knew Benjamin Franklin and published *The History and Present State of Electricity, with Original*

*Experiments* (1767).<sup>4</sup> Mary also must have known that at Oxford in 1810–1811 Percy had constructed his own electrical kite, made sparks by an electrical apparatus, and stored the “fluid” of electricity in Leyden jars: these actions provide the basis for the electrical experiments by Victor’s father, Alphonse, in *Frankenstein*. The two Shelleys attended at least one of the many lectures in London on chemistry and electricity at this time, Mary recording on 28 December 1814 that they attended the “Theatre of Grand Philosophical Recreations” at the Great Room, Spring Gardens, where the famous balloon ascender and parachute descender “Professor Garnerin” gave a lecture titled “Electricity, Gas, Aerostation, Phantasmagoria, and Hydraulic Sports.”<sup>5</sup> In Geneva in June 1816, during the coldest summer on record, Mary listened to conversations between Lord Byron and Percy about possibly discovering “the nature of the principle of life” (pp. 191–192), about galvanism and the experiments of Erasmus Darwin, and about the possible reanimation of a corpse.<sup>6</sup> And in early August 1816, she made Percy a balloon and purchased a telescope for his birthday.<sup>7</sup> Within a few months, by 28 October, she recorded her familiarity with the science of Sir Humphry Davy (1778–1829), whose book *Elements of Chemical Philosophy* (1812)<sup>8</sup> she read while she was drafting the first chapters of *Frankenstein* in the fall of 1816.

During the two-year period before Mary began to write *Frankenstein*, she was almost certainly aware, by way of Percy, of the famous vitalist controversy on the definition of life between two prominent scientists, John Abernethy (1764–1831) and his pupil, William Lawrence (1783–1867), the two professors of anatomy and surgery at London’s Royal College of Surgeons.<sup>9</sup> Percy had attended some of Abernethy’s lectures in 1811, and Lawrence was Percy’s personal physician.<sup>10</sup> Moreover, Mary had met Lawrence at least twice when she accompanied her father to tea on 1 June 1812 and 5 March 1813 at the home of John Frank Newton, known for his vegetarianism.<sup>11</sup> Lawrence and Abernethy had become opponents by 1814: the former argued for a materialist explanation of life and against Abernethy’s theory of vitalism, which explained life in terms of “some ‘superadded’ force ... , some ‘subtile, mobile, invisible substance,’ analogous on the one hand to soul and on the other to electricity.”<sup>12</sup> This debate between Lawrence and Abernethy may have inspired Mary’s depiction of Victor’s relationships with his two different professors at the University of Ingolstadt (1472–1800), an actual Bavarian institution that had faculties of science, humanities, and medicine.<sup>13</sup> Victor first encountered and rejected “M. Krempe, professor of natural philosophy” (p. 28), who ridiculed him for his concentration on the alchemical philosophers Albertus Magnus

(c. 1193–1280) and Paracelsus (1493–1541) and who recommended the latest books on natural philosophy. Victor was not naive, but his negative reaction to Krempe was dictated by the professor’s physiognomy (appearance is a thematic motif in this novel: witness the horrified reactions to the deformed creature). As Victor himself explains, “I had long considered those authors useless whom the professor had so strongly reprobated; but I did not feel much inclined to study the books which I procured at his recommendation. M. Krempe was a little squat man, with a gruff voice and repulsive countenance; the teacher, therefore, did not prepossess me in favour of his doctrine. Besides, I had a contempt for the uses of modern natural philosophy” (p. 29).

Victor changed his opinion about modern science once he heard M. Waldman (also modeled on Percy Shelley’s kindly Etonian professor, Dr. Lind) deliver a lecture about the history of science, a lecture that most STEM students need to hear today:

M. Waldman entered shortly after. This professor was very unlike his colleague. He appeared about fifty years of age, but with an aspect expressive of the greatest benevolence. ... He began his lecture by a recapitulation of the history of chemistry and the various improvements made by different men of learning, pronouncing with fervour the names of the most distinguished discoverers. He then took a cursory view of the present state of the science, and explained many of its elementary terms. After having made a few preparatory experiments, he concluded with a panegyric upon modern chemistry, the terms of which I shall never forget:—

“The ancient teachers of this science,” said he, “promised impossibilities, and performed nothing. The modern masters promise very little; they know that metals cannot be transmuted, and that the elixir of life is a chimera. But these philosophers, whose hands seem only made to dabble in dirt, and their eyes to pore over the microscope or crucible, have indeed performed miracles. They penetrate into the recesses of nature, and shew how she works in her hiding places. They ascend into the heavens; they have discovered how the blood circulates, and the nature of the air we breathe. They have acquired new and almost unlimited powers; they can command the thunders of heaven, mimic the earthquake, and even mock the invisible world with its own shadows.” (p. 30)

That same evening Victor seeks out Waldman in his own house and discovers that his new mentor is exceptionally kind and affable:

He heard with attention my little narration concerning my studies, and smiled at the names of Cornelius Agrippa, and Paracelsus, but without the contempt that M. Krempe had exhibited. He said, that “these were men to whose indefatigable zeal modern philosophers were indebted for most of the foundations of their knowledge. They had left to us, as an easier task, to give new names, and arrange in connected classifications, the facts which they in a great degree had been the instruments of bringing to light. The labours of men of genius, however erroneously directed, scarcely ever fail in ultimately turning to the solid advantage of mankind.” ... [I] added, that his lecture had removed my prejudices against modern chemists; and I, at the same time, requested his advice concerning the books I ought to procure. (pp. 30–31)

Before inviting Victor to use the machines in his laboratory, Waldman gives him a message that speaks across the decades to the STEM students of the twenty-first century:

“Chemistry is that branch of natural philosophy in which the greatest improvements have been and may be made; it is on that account that I have made it my peculiar study; but at the same time I have not neglected the other branches of science. A man would make but a very sorry chemist, if he attended to that department of human knowledge alone. If your wish is to become really a man of science, and not merely a petty experimentalist, I should advise you to apply to every branch of natural philosophy, including mathematics.” (p. 30)

Despite these endorsements of chemistry and natural philosophy in her novel, Mary realized that science could be abused, as is certainly evident in Victor’s reckless and selfish experiments, which do not account for their consequences. Even Victor is aware of the distinction between his selfish actions and his selfless actions. In his initial conversation with the scientific explorer Robert Walton, the narrator of this frame-tale novel,<sup>14</sup> he refuses to share his secret knowledge: “I will not lead you on, unguarded and ardent as I then was, to your destruction and infallible misery.” Victor continues: “Learn from me, if not by my precepts, at least by my example, how dangerous is the acquirement of knowledge, and how much happier that man is who believes his native town to be the world, than he who aspires to become greater than his nature will allow” (p. 35). On his death bed at the end of the novel, Victor addresses a similar warning to Walton: “Seek happiness in tranquillity, and avoid ambition, even if it be only the apparently innocent one of distinguishing yourself in science and

discoveries. Yet why do I say this? I have myself been blasted in these hopes, yet another may succeed” (p. 182).

Although Mary seems to be leaving the door open here for a future when selflessness and science will mutually serve each other, the novel’s basic argument is that science can be as destructive as it is constructive. That argument about the dangers of knowledge is emphasized when the creature “found a *fire* which had been left by some wandering beggars, and was overcome with delight at the warmth I experienced from it. In my joy I thrust my hand into the live embers, but quickly drew it out again with a cry of pain. How strange, I thought, that the *same cause should produce such opposite effects!*” (p. 84, my italics).<sup>15</sup> By her subtitle *The Modern Prometheus*, Mary is asking her reader to recall the Promethean myth, in which the Titan Prometheus steals fire (representing knowledge) from the Olympian Zeus to give to primal and prerational man, only to suffer the consequences of his actions. Zeus chains Prometheus, the creator of rational man, to a rock, where he is visited daily by a vulture/eagle that devours his liver/heart, only to have the same punishment repeated each day. So knowledge does cause sorrow, and fire does cause pain; and the etymology of the name “Prometheus” (Forethought) is ironic: Victor, “the modern Prometheus,” lacks forethought and fails to understand the destructive consequences of his actions in constructing his creature. Although Mary did not make the corollary myth explicit in her narrative, Prometheus’s brother Epimetheus (Afterthought) is associated with all the evils released from Pandora’s box: fulfilling that myth have been the technocratic decisions leading to the pesticide DDT, the atom bomb, Three Mile Island, Chernobyl, and the British government’s permission, reported in the British newspapers on 1 February 2016, that a stem cell scientist could perform genome editing despite objections that ethical issues were being ignored.

Prometheus is not the only myth that Mary used to develop her theme. Even more noticeable are her many references to the Book of Genesis, with its Garden of Eden and the Tree of the Knowledge of Good and Evil. The epigraph on the title page of the first edition of *Frankenstein* in 1818 is taken from John Milton’s famous epic poem *Paradise Lost*, one of the books from which the creature learns to read. He is a “quick study” when he reads that Adam and Eve, tempted by Satan to be like God in knowing good and evil, ate of the tree and were exiled from paradise. Knowledge led to sorrow and the fall of humankind from the sin of pride or hubris. The attentive reader will notice that Victor’s Edenic childhood in Geneva is lost when he goes off to university to study science: he laments the loss of his “native town” (p. 53) in the same way that the creature laments his loss



after he learns the “godlike science” of speech (p. 91) and “the science of letters [reading]” (p. 97): “sorrow only increased with knowledge. Oh, that I had for ever remained in my native wood, nor known or felt beyond the sensations of hunger, thirst, and heat!” (p. 99).<sup>16</sup>

The parallels between Victor’s and the creature’s statements about the dangers of knowledge draw our attention to the doppelgänger or double theme of this novel in which the physical ugliness of the creature reflects the psychological ugliness of his creator, Victor. As Victor himself expresses that relationship, “I considered the being whom I had cast among mankind, and endowed with the will and power to effect purposes of horror, such as the deed which he had now done, nearly in the light of my own vampire, my own spirit let loose from the grave, and forced to destroy all that was dear to me” (p. 59). If man was made in God’s image, it is only appropriate that the creature would be made in the image of his psychologically disfigured creator, one whose head or reason has destroyed his heart or emotions in the persons of Elizabeth and Clerval: in the 1831 edition, Victor identifies his Elizabeth as the “living spirit of love” that he needs for psychic completion; and in both the 1818 and 1831 editions, Victor “saw the image of [his] former [and better] self” in Clerval (p. 134). A diagram helps to demonstrate the symbolic relations among all of the major characters as they externalize Victor’s internal conflict:

HEAD	Robert Walton	Victor Frankenstein	the creature
HEART	Margaret Walton Saville	Elizabeth Lavenza and Henry Clerval	the female creature

Once Victor destroys the female creature, it is inevitable that the creature himself will destroy Elizabeth and Clerval; in effect, the novel “ends” the night that Victor constructs his creature, and the rest of the plot merely literalizes and externalizes Victor’s self-destructive acts when he rules love out of his heart and, in the form of his monstrous self, kills Elizabeth and Clerval in what may be read as an act of suicide.

This reading of *Frankenstein* is but one among the many that this novel allows. Victor constructing his monstrous creature may also be read as political science or political philosophers creating the destructive French Revolution or the science of natural philosophy creating the dehumanizing Industrial Revolution. Yet another reading of the novel is that it is about the creating of the novel itself: just as Victor assembles bones and muscles and sinews and other body parts of his creature, so also Mary assembled



the words and images and symbols and punctuation of her novel. To make this point, she used birthing metaphors in her introduction to the 1831 edition: she did “*dilate* upon, so very hideous an idea”: “I bid my hideous *progeny* go forth and prosper. I have an affection for it, for it was the *offspring* of happy days” (pp. 189, 193, my italics).<sup>17</sup>

Those happy days involved collaboration with Percy Shelley in 1816 and 1817, when the novel was written—and there is a lesson to STEM students in the facts of that collaboration, which is often essential for most scientific discovery. As I have outlined in other publications,<sup>18</sup> Percy edited Mary’s novel, suggesting that she expand a shorter version of it into the novel we now read, in the margins of the draft manuscript advising about some of the plot, rewriting parts of the concluding pages as he fair copied the draft into the pages that would be submitted to the publisher, advising her about transforming her thirty-three-chapter draft into a twenty-three-chapter “fair copy,” and writing at least five thousand of the seventy-two thousand words of this novel. In general, Mary relied on Percy for some of her accomplishments in the first edition of the novel she published on 1 January 1818.<sup>19</sup> In doing so, she implicitly honored the character of Clerval, who, as a social scientist and linguist staying in Geneva to honor his father’s wishes and leaving there with the hopes of pursuing his own education, only to end up nursing Victor, offers an example to the reader: Clerval, whose “science” involves other people, does not isolate himself as Victor does in his pursuit of knowledge. As Victor describes him later, “Clerval! beloved friend! ... He was a being formed in the ‘very poetry of nature.’ His wild and enthusiastic imagination was chastened by the sensibility of his heart” (p. 132). It is likely that Percy wrote these words in a late addition to the proofs of the novel, and the reference to “imagination” (the head or reason chastened or directed by the heart) will help bring this introduction to what I hope is an illuminating end.

The chastened or creative imagination is at the heart of English romanticism, and its various definitions somehow involve or evolve from the famous and short thirteenth chapter of *Biographia literaria* (1817) by Samuel Taylor Coleridge (1772–1834), in which he simply states that the “primary imagination [is] the living power and prime agent of all human perception, and ... a repetition in the finite mind of the eternal act of creation in the infinite I am” ([1817] 1907, 202). Just as God ontologically created or fashioned this universe from chaotic matter, so also does the human mind or imagination epistemologically create its own universe from the chaotic sensory data that a person receives from the external world. Man is not God (although Victor tries to be); rather, man is like unto

God in each and every one of the creative perceptions that take place every second of a human being's existence. What this means is that we never know the thing in itself—we know only our creative constructs of a thing. Percy Shelley put it most bluntly: “nothing exists but as it is perceived,” and “All things exist as they are perceived.”<sup>20</sup> These statements mean that for Percy Shelley, rather than an ontology (or theory of being) determining what our epistemology (or theory of knowledge) might be, epistemology is primary or privileged in all human experience. If creative perception determines existence, then it is fair to say that a novel is just as real or true as a scientific theory—both are constructs by the human imagination to give form to the chaos of our experiences. Such reasoning puts the A back into STEM and demonstrates that there really are not Two Cultures, science and the humanities<sup>21</sup>—there is only one unified theory of being created by us as a means to give form to a reality that we never fully know in itself. The Shelleys are attempting to tell us that the humanities, including in this case *Frankenstein*, offer a representation of the world that is just as valid as an engineer's blueprint.

Thus, *Frankenstein* and this introduction encourage STEM students to respect the humanities as offering a valid means of defining and even improving the world, much as science hopes to do. *Frankenstein* is certainly not the only work of art that addresses these issues, but it has become a metaphor for science that ignores human consequences and values. Every day some blog or newspaper or magazine or book or movie or television show alludes to *Frankenstein* in order to describe science gone bad. But these allusions to the evils of science can teach us much about our human condition. In fact, some recent Frankenstein-inspired “moving pictures” (the first *Frankenstein* film was produced in 1910 by the inventor Thomas Edison) actually show a nonhuman being gaining respect for human life and human values. Ignoring the usual suspects among the many “Frankenstein” movies, including Mel Brooks's wonderful *Young Frankenstein* (1974),<sup>22</sup> I conclude here by mentioning two of my favorite allusive works of art: James Cameron's film *Terminator 2: Judgment Day* (1991) and the CBS television series *Person of Interest* (2011–2016), which centers on an artificial intelligence (AI) machine.

Most people do not realize that *T-2* is an homage to Mary and her novel, but the viewer is reminded of *Frankenstein* by the opening electric flashes as the nonhuman android Arnold Schwarzenegger materializes, comes back from the future, and reveals that he has apparently developed the equivalent of a heart that can feel for humanity. Even more allusive is his selfless destruction of the computer chip that conveniently saves Los Angeles and

the world from the thermonuclear destruction that would occur on August 29, 1997, the day before Mary's two hundredth birthday—so that we could celebrate her bicentennial without holding her responsible for starting the scientific revolution that eventually led to the computer chip that led to the microprocessor that led to Skynet that led to the destruction of billions of lives.

Less allusive but equally compelling is the plot of *Person of Interest*, in which computer programmer, engineering genius, and tech billionaire Harold Finch (he also goes by other bird names) creates an AI machine for the government to prevent terrorist attacks. At the same time that the government abuses the power of this all-seeing and all-hearing AI machine, Finch and his associates use it to predict and prevent local murders and other acts of nonterrorist violence. The amoral Machine, which electronically monitors every cell phone and email message and surveillance camera in the world to detect terrorism, teaches itself and apparently develops, as the Terminator did, compassion for the local victims of violence. As it is pursued by various antagonists and attacked by a competitor machine called Samaritan, it hides itself in the national power grid. At the end of season 4, as Samaritan shuts down the power grid starting on the West Coast, the Machine retreats to a large electrical substation in Brooklyn until Finch and associates download enough of the computer code into a hard drive that will be carried away in a suitcase—in hopes of saving the world from Samaritan's machinations (as it were). Electricity, technology, and the "Frankenstein" myth seem to come full circle at this moment of the plot: from Benjamin Franklin's kites and electrical storms to Joseph Priestley's history of electricity that led to late eighteenth-century and early nineteenth-century scientific experiments, to *Frankenstein*, to Hollywood adaptations of *Frankenstein* that use lightning to power the electrical machines that generate the creature, and to the most recent adaptations that feature computers and codes and algorithms and hard drives and a final apocalyptic machine on which the fate of the world depends.<sup>23</sup>

*University of Delaware*

## NOTES

1. In my previous publications on *Frankenstein*, I referred to Victor Frankenstein's unnamed creation as "the monster," what I deemed the most appropriate of the names given to him in the novel (he is also denominated "creature," "Being," "wretch," "devil," and "dæmon"). In this introduction, I follow the editors' use of the word *creature* to denominate the unnamed "Being," despite the fact that some who use the word *creature* tend to excuse his actions, whereas some who use the word *monster* tend to hold him accountable for the murders he commits. Mary certainly wanted to force the reader to morally judge the "creature" by not giving him a name.

For example, were we to call him a “dæmon,” we would not necessarily demonize him, for “dæmon” to Mary meant not a devil (and not a program running in a Unix system) but, as in Greek mythology, a runner between heaven and earth, a superhuman being less than a god. By having no single name, the monster has a universality that embraces all of humankind; indeed, when Mary saw in the playbill of the first theatrical performance of her novel in 1823 that the “\_\_\_\_\_” was being played by “Mr T. Cooke,” she remarked in a letter to Leigh Hunt that “this nameless mode of naming the un[n]ameable is rather good” (M. Shelley 1980, 1:378). The reader is also reminded that “naming” is a symbolic act in which the namer is greater than the named; that Victor does not name his “creature” tells us much about their relationship.

2. Watt’s many legacies include the name of the unit of power that we now call the “watt.”
3. See Robinson 2016b, 1:lxv–lxvi and especially lxxv n. 46, where Anne K. Mellor and Leonard Wolf are also cited, and Robinson 2016a. See also Crook 1996, 1:51 n.
4. Readers of this edition who wish to pursue these various antecedents to *Frankenstein* are encouraged to seek information on these and other eighteenth-century scientists in the *Oxford Dictionary of National Biography* (available online in most university library databases) and to read their works and others online at Google Books and hathitrust.org.
5. See M. Shelley 1987, l:56 and n., and an advertisement in the *Morning Post* for 8 November 1814, p. 2, col. 1. The “Professor Garnerin” referred to is probably the aeronaut André-Jacques Garnerin (1769–1823), but it also might possibly be his brother Jean-Baptiste-Olivier Garnerin (1766–1849). Because of a misreading of Mary’s journal entry, the lecturer is incorrectly identified as Andrew Crosse in scores of websites and a number of books—see, for example, Prior 2015. (Note that difficult-to-correct error creeps into literary as well as scientific papers.) It is also possible that the lectures to which Godwin took Mary in early 1812 (January 2, 9, 13, 16, 20, and 27), as recorded in his diary, dealt with anatomy and chemistry—see Godwin 2012 and <http://godwindiary.bodleian.ox.ac.uk/diary/1812.html>.
6. That cold summer resulted from the Indonesian volcano Tambora erupting in 1815 and blanketing the atmosphere with gas and ash (see “Frankenstein’s Summer” and “Ice Tsunami in the Alps” in D’Arcy Wood 2014, 1–11, 150–170). Assembled during the telling of ghost stories at Byron’s Villa Diodati were Mary and Percy, the twenty-eight-year-old poet Lord Byron (1788–1824); Mary’s eighteen-year-old and slightly younger stepsister Clara Mary Jane (Claire) Clairmont (1798–1879), pregnant with Byron’s child; and Byron’s young personal physician, John William Polidori (1795–1821).
7. See M. Shelley 1987, 121–122, journal entries for 1–4 August 1816.
8. Garrett 2002, 24–25. Shelley read Davy’s *Elements of Chemical Philosophy* (1812) on September 28–31, 1816, while drafting *Frankenstein*. The clever reader may wish to find echoes of Davy’s works in *Frankenstein*.
9. For more on materialism and vitalism, see Jane Maienschein and Kate MacCord’s essay “Changing Conceptions of Human Nature” in this volume.
10. See Bieri 2008, 135, 266, 313, 383–384.
11. Newton had recently published *The Return to Nature, or, A Defense of the Vegetable Regimen; with Some Account of an Experiment Made during the Last Three or Four Years in the Author’s Family* ([1811] 2015). Note that the creature is a vegetarian who survives on “acorns and berries” (p. 121).
12. M. Butler 1993a, 12–14, quoting John Abernathy. See also “The Shelleys and Radical Science,” Marilyn Butler’s introduction to *Frankenstein; or, The Modern Prometheus: The 1818 Text* (Butler 1993b, xv–xx), which was reprinted and reissued in an Oxford World’s Classics edition of *Frankenstein* (M. Shelley 2008). For more on this matter, see Mellor 1987 and Mellor’s essay in this volume. See also Rushton 2016.

13. The University of Ingolstadt was also defined by the Illuminati, a secret and revolutionary society founded there in 1776.
14. The frame tale is essentially a didactic device: from the outside in, the reader is to Walton just as Walton is to Victor just as Victor is to the creature just as the creature is to the De Lacey family. From the inside out, the De Lacey family teach the creature, who teaches Victor, who teaches Walton, who teaches his sister, Margaret Walton Saville (note the initials MWS), and thereby teaches the reader about the dangerous consequences of the pursuit of knowledge.
15. Mary makes the same symbolic point when the creature delivers firewood to assist the De Lacey family with their chores but then later burns down the De Lacey cottage after the family rejects him.
16. The third Western myth about the dangerous consequences of the pursuit of knowledge can be found in Plato's *Symposium* (Plato 1999), in which Aristophanes, in attempting to define love, tells the story of the circular and sexually complete (four arms and four legs) primal being who rolls halfway up Mount Olympus and with the extra appendages scales the remaining heights and intrudes on the dominion of the gods. In response to that being's presumption and pride, the gods split the being down the middle. Aristophanes concludes that love is the desire to make whole, complete, and entire what once had been whole, complete, and entire. Mary does not allude to this myth until her 1831 edition, in which Victor tells Walton that "we are unfashioned creatures, but half made up, if one wiser, better, dearer than ourselves—such a friend ought to be—do not lend his aid to perfectionate our weak and faulty natures. I once had a friend [Clerval], the most noble of human creatures, and am entitled, therefore, to judge respecting friendship" ([1831] 2000, 38). Mary became aware of this myth when she, as amanuensis, transcribed Percy's translation of the *Symposium* in 1818.
17. For one of the many birthing metaphors in the novel proper, consider that Frankenstein's "cheek had grown pale with study, and [his] person had become emaciated with confinement" (p. 38) during the period he constructs his creature, "confinement" denoting the period shortly before the birth of a child. For another reference to this metaphor, consider that Walton's narrative takes place over 276 days—that is, the nine-month gestation period.
18. See my "Frankenstein Chronology" (Robinson 2016a, 1:lxvii–cx), especially the entries between 15 June 1816 and 28 October 1817; this chronology can be consulted online in the Shelley–Godwin Archive at <http://shelleygodwinarchive.org>. This archive also makes available digital images of all the manuscript pages of the Shelleys' draft and fair copy of the novel, but the reader is cautioned that the facing transcription pages lack the lineation of the hardbound edition and also lack the extensive footnotes to each manuscript page. For my more recent essay on this collaboration, see Robinson 2015. For a visual representation of Percy's words in Mary's draft, see M. Shelley 2008, 39–254.
19. The first edition was published in three volumes in 500 copies by Lackington, Hughes, Harding, Mavor, & Jones. A second edition in two volumes was published on 11 August 1823 in 500 copies by G. and W. B. Whittaker. A revised and third edition in one volume with an added chapter was published on Halloween, 31 October 1831, in 4,020 copies by Henry Colburn and Richard Bentley.
20. For these two quotations, see Percy Shelley's essays "On Life" and "A Defence of Poetry" in P. Shelley 2002.
21. I here allude to the famous lecture "The Two Cultures" delivered by the chemist, physicist, and novelist C. P. Snow (1905–1980), published under the title *The Two Cultures and the Scientific Revolution* ([1959] 2013).
22. See my "'Frankenstein Filmography'" in Robinson 2013. For other lists of *Frankenstein* films, see <http://knarf.english.upenn.edu/Pop/filmlist.html>; see also the catalog of all things *Frankenstein* in Glut 1984.

23. In the final episode of season 5 of *Person of Interest*, which aired on CBS on 21 June 2016, we encounter an Ice-9 computer virus that eventually destroys Samaritan and nearly destroys the Machine; a “cyber apocalypse” survived by the Machine and Finch and some of his associates; and two universal lessons voiced by the Machine that Finch created: “everyone dies alone,” but “maybe you never really die.” Although *Frankenstein* is never directly invoked in any of the 103 episodes, *Person of Interest* testifies to the life of Mary Shelley and of her creature during the past two hundred years.





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# Frankenstein

**Annotated for Scientists, Engineers, and Creators of All Kinds**

**By: Mary Shelley**

**Edited by: David H. Guston, Ed Finn, Jason Scott Robert**

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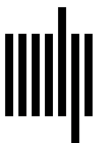
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