

Science Playing God

ALISON BRIGHT MACWILLIAMS

Mr. Parker, do you know what it means to feel like god?

—Dr. Moreau, *The Island of Lost Souls*

THE THREAT THAT TOO much ambition after knowledge might bring down the wrath of the gods is one well embedded in ancient religion and myth, whether one looks to the Greeks' Icarus, or to Genesis' fatal Tree of the Knowledge of Good and Evil. It is perhaps no surprise then that what is widely credited as the first science fiction novel, Mary Shelley's *Frankenstein: Or the Modern Prometheus*, would be read by most contemporaries as just such a fable: man usurps God's role as creator, and thus must inevitably fall and be destroyed. Indeed, Shelley at times encourages such a reading, both in Victor Frankenstein's self-analysis, and in the condemnation of his monster. It should be remembered, however, that Dr. Frankenstein is presented, not as the "Modern Icarus"—or even the "Modern Daedalus"—but as Prometheus, himself a god, though punished for putting divine fire into human hands. From its inception, much of science fiction has been preoccupied, not simply with the idea that science provides a challenge to religion as a way of knowing, but with the concept that science, with its attendant technology, gives mortals real godlike power. The challenge is, then, can human beings wield such power

responsibly? Or are they doomed by their very nature to fall short and wreak destruction on themselves and others? Two major strains of science fiction approach this question, both of them rooted in Shelley's own ambivalence towards science.

The view of scientists as tragic usurpers of godlike power seems to dominate classic science fiction in part because of the frequent retelling of both Shelley's *Frankenstein* and another text, H. G. Wells's *Island of Dr. Moreau* (itself sometimes viewed as a riff on Shelley) in a variety of media, including theatrical productions, film, and answering or derivative fiction. Indeed, so omnipresent are these derivations that it is hard for a modern reader to come unbiased to the ambiguities of the original texts. It is useful, therefore, to look at why so many contemporary readers of Shelley saw *Frankenstein* as a morality play about the inevitable downfall of a hubris-ridden scientist (and why *Dr. Moreau* was subsequently read as such) before moving on to other manifestations of this point of view.

Those most familiar with the *Frankenstein* of early 20th century horror films frequently stumble over the structure of the original novel. Shelley's *Frankenstein* begins as an epistolary novel, with the character of Walton, a scientific explorer taking his crew on a dangerous mission through the ice to try to reach the North Pole. Walton writes in letters to his sister of his mission, and then of meeting this strange man traversing the ice in his dog sled. This turns out to be Victor Frankenstein, who, in the second layer of the novel, tells Walton his life story, including the creation of the monster and the tragedies that follow. Sandwiched in the center of Frankenstein's narrative is a third layer, when Victor encounters the monster for the first time after abandoning him. Here the extremely articulate monster relates his own view of his wanderings up to that point. The story then continues with Victor's narrative, up to the point of him explaining his presence on the ice, and then ends with the frame story of Walton's letters.

The three-part narrative scheme of the novel allows for different interpretations of why Victor's experiment ends in tragedy. Both the Walton and the *Frankenstein* narratives do have some elements that support the view that the arrogance of science in usurping divine power has caused the monster to run amok. This appears most strongly in Frankenstein's own narrative. "All my speculations and hopes are as nothing, and like an archangel who aspired to omnipotence, I am chained in an eternal

hell.”¹ The Walton narrative, though less direct, also supports such a reading, as Walton is presented with the choice of dangerously pursuing his exploratory goal, or turning back. Unlike Frankenstein, his arrogance is tempered by the need to maintain the support of his crew; when they vote to turn back, the potential results of his drive for knowledge go untested.

As we will see, the monster narrative presents an alternative viewpoint, one that also gets some support from the Frankenstein portion of the narrative, but it is the first interpretation—the usurpation of divine powers brings disaster—that was picked up on by contemporary critics. Early reviews of *Frankenstein* in both *The Quarterly Review* and *The Belle Assemblée* both focus on the issue of materialism—that a living, thinking being is created without reference to a soul. The former accuses Shelley of perpetrating a moral abomination by suggesting such a creature could live, while the latter, more generously, presumes the novel is a cautionary tale suggesting that only bad results can come from treating life without reference to spirit. Both, however, are clear that the moral problem of the novel rests in the act of daring to create life. By the time the novel was re-released in 1831, Shelley herself submits to this reading, altering the introduction to suggest that Frankenstein is punished for exceeding the limits of human morality.

As the Frankenstein tale jumped to other media and was expanded upon by other authors, this presentation of the scientist disastrously playing god was reiterated, often more directly and didactically. The earliest play based on the novel, mounted in 1832, has a blatantly egotistical Frankenstein (now an alchemist in Renaissance Italy) who can transmute metals as well as create life, and who is prone to utter statements like “How vain, how worthless is the noblest of fame compared to mine!”² The classic 1931 film version by James Whale is blunter still, beginning with a narrator stepping forward to announce “We are about to unfold the story of Frankenstein, a man of science who sought to create a man after his own image without reckoning upon God.”³ Early print variations on Shelley’s tale follow suit. As early as 1837 *Frankenstein* was parodied by

1. Mary Shelley, *Frankenstein, Or, the Modern Prometheus* (New York: Bantam, 1991), 194.

2. H. M. Milner, “Frankenstein; or Man and the Monster!” *The Frankenstein Omnibus*, ed. Peter Hanning (Edison, NJ: Chartwell, 1994), 297–319.

3. *Frankenstein*, prod. Carl Laemmle, Jr.; dir. James Whale, 1 hr. 11 min., Universal Pictures, 1931, videocassette.

William Maginn in a short story that has the main character, a follower of Frankenstein, denounced as an agent of Satan by the desecrated dead.⁴

By the time H. G. Wells penned *The Island of Dr. Moreau* in 1896, the archetype of the hubris-ridden scientist was so embedded in science fiction that some readers viewed Wells's novel as simply another Frankenstein clone: mad doctor dares to try to create life, and is subsequently destroyed by his flawed and disturbing creations. Like Shelley, however, Wells is playing a deeper game. *Moreau* presents the reader, not with three narrators, but with three scientists, the narrator-protagonist being one of them, each with a different view of the central act of creation, and each with a different fate. As in *Frankenstein*, the novel as a whole provides alternate viewpoints, but the title character most strongly shows a scientist who plays god only to meet a terrible reckoning. *Moreau*, however, gives no soul-searching speeches. Instead the reader is presented with a scientist who not only creates pseudo-human abominations, but also gives them his own set of commandments, and a version of hell on earth—those who disobey go back to the “house of pain” that created them.⁵ In a way, *The Island of Dr. Moreau* “corrects” one of Victor Frankenstein's mistakes. The creatures cannot, like Frankenstein's monster, complain of neglect and a lack of teaching, as *Moreau*'s are given laws and structure. That they nonetheless turn violent certainly supports a reading that *Moreau*'s usurpation of the prerogative of creation is inherently flawed and doomed.

Like *Frankenstein*, *The Island of Dr. Moreau* is followed by a series of films that simplify the plot in a way that focuses attention on the idea that the story's tragedy comes from the error of playing god. None of the film versions presents the interplay between three scientists that allows the novel to express a more positive view of science. The closest is the 1932 version, *The Island of Lost Souls* starring Charles Laughton as a sly and creepy *Moreau*, and, like the novel, featuring an assistant, Montgomery, who has a medical background tainted by problems with alcohol. He is, however, a weak character, who primarily serves to repudiate *Moreau* when the experiments have gone too far. Meanwhile, Laughton as *Moreau* gets to chew up the scenery. Not only does he try to make animals into humans by means of vivisection, he also (most unlike the book) tries to breed his monstrosities with real humans, first attempting to pair “Lota

4. William Maginn, “The New Frankenstein,” in *The Frankenstein Omnibus*, 39–54.

5. H. G. Wells, *The Island of Dr. Moreau* (New York: Bantam, 1994), 66.

the cat woman” (not appearing in Wells’s novel, but followed by a series of cat women in subsequent films) with hapless shipwrecked Parker, and then conspiring for one of his ape men to rape Parker’s fiancé when she arrives with a rescue party. His arrogance is most plainly expressed in his famous monologue about his experiments to the captive Mr. Parker. Staring fanatically at his creatures laboring outside, Moreau murmurs “Mr. Parker, do you know what it means to feel like God?” Of course, Moreau is torn to shreds at the end, dragged to his own surgical theater when his beast-men turn riotous after Moreau breaks one of his own laws—“you shall not kill other men.”⁶

Even the most modern of the film versions of *The Island of Dr. Moreau* keeps this strong emphasis on the usurpation of divine creative powers. In the 1996 version starring Marlon Brando as Moreau, Brando parades in front of his beast-men in pseudo-papal regalia and controls the beast-men with electric shocks likened to divine lightning bolts. In this film the castaway is a representative of NATO who even further reinforces the false god theme by telling the beast-men, rioting after Moreau’s death, that Moreau has transcended the physical state, dying, Christ-like, so that he can watch over them invisibly. Predictably, this does not help matters much.

While *Moreau* did not spawn what is practically a genre of science fiction, as *Frankenstein* did, it too became a cultural reference point, engendering its share of spin-offs. Interestingly, these tend to replace a vengeful god with nature. The scientist still oversteps proper human boundaries, and is still destroyed for such transgression, but without even Wells’s religious themes. A recent example may be found in Robin Cook’s 1997 novel *Chromosome 6*, which has an island facility where human DNA is incorporated into apes to provide replacement organs that perfectly match those wealthy enough to afford an ape “double.” Here, too, the apes evolve and rebel (though in this case the monster men seek primarily to escape, not destroy, their creators). The 1972 Mexican film *The Twilight People* (starring blaxploitation film star Pam Grier) blatantly rips off Wells to present a similar moral, with the scientist killed by humans he has melded with animals. Michael Crichton, too, takes off from Wells’s work in his 1991 novel *Jurassic Park*, presenting an island compound where scientific manipulation of animals leads to the

6. *The Island of Lost Souls*, dir. Erle C. Kenton, 1 hr. 11 min., Paramount Productions, 1932, videocassette.

animals running amok and destroying the scientific facilities. Crichton presents perhaps the most direct statement of this shift from avenging god to avenging nature through chaos theorist Ian Malcolm: “you [scientists] decide you won’t be at the mercy of nature. You decide you’ll control nature, and from that moment you’re in deep trouble, because you can’t do it.”⁷ Or, as he states in the film version, “Life breaks free; it expands to new territories and crashes through barriers, painfully, maybe even dangerously. . . . Life finds a way.”⁸ The odd exceptions to the Moreau clones are Edgar Rice Burroughs’ 1913 novel, *The Monster Men* and Jack L. Chalker’s *The Moreau Factor* published in 2000. These texts we will discuss later as clear examples of our second category of fiction with scientists playing God, the more optimistic view of science being a constant trait in Burroughs’ fiction.

As the possibility of creating and manipulating life, especially human life, has moved from outrageous fantasy to the scientifically possible, the literary theme has expanded beyond the small scale of *Frankenstein* or *Moreau* to encompass whole societies made by misguided science. In some, a struggle similar to that between Victor Frankenstein and his monster develops, as the “monsters” (those created or manipulated by science) struggle against the “normal” humans, with both sides striving to validate their own lives. An interesting example of this may be found in David Brin’s 2002 novel *The Kiln People*. Here technology has been developed to allow people to create temporary copies of themselves, impressing their personalities on “clay” beings that can then perform various tasks for the original, and, ultimately, may have their memories shared with the original person. This possibility of rejoining the central personality does not prevent the clay copies from resenting their constrained and temporary “lives”—leading almost inevitably to an attempt by clay copies to prolong their lives and even destroy and replace the original person. Similar revolutions, though perhaps on a smaller scale, can be found in movies such as *Blade Runner* and *The Island*. In all of these, the recognition of consciousness on the part of the manufactured humans grants some sympathy to both sides. All suggest that science goes too far when it creates sentient beings, especially ones destined for short lives, but argue that destroying a self-aware being, even if misbegotten, may only compound the crime.

7. Michael Crichton, *Jurassic Park* (New York: Knopf, 1990), 351.

8. *Jurassic Park*, dir. Steven Spielberg, 2 hrs. 7 min., Universal Studios, 1993, DVD.

Another variant of this theme is one in which scientific manipulation of life is so extensive and commonplace that practically everyone is manufactured—everyone is a monster. The classic example of this is Aldous Huxley's 1932 novel, *Brave New World*. Here all people (except for a few groups, known as savages, confined to reservations) come from carefully controlled laboratories. Even once decanted from their beakers, their lives are scientifically controlled and regimented. All negative emotions are controlled by drugs. The result, rather than being groups fighting to assert or preserve their humanity, is a society where all (except for the "savages") have lost their humanity and don't even know it. A similar, though less bleak, example in film is *Gattaca*, in which an un-engineered, imperfect man manages to subvert the system and achieve his dream of space flight. The less positive fate of "perfect" genetically engineered characters presents a clear moral that this attempt by science to create perfection instead destroys an individual's sense of accomplishment and saps the will. Both of these works present an almost Calvinistic worldview, where science has replaced God as the author of predestination—with predictably disastrous results.

If we return to the original *Frankenstein* and *Island of Dr. Moreau*, however, a possible alternative is presented to the aforementioned bleak views of the apotheosis of science. Although both of these novels end in disaster, they leave the possibility open that it is not the act of science usurping divine prerogative that causes this disaster, merely the execution of the presumptive act that is faulty. In other words, maybe if the scientists in these novels had planned better, they would have gotten better results. This is most clearly expressed in *Frankenstein*, where the tripartite narrative allows speculation on different ways in which this experiment might have gone wrong. In the central narrative, that of the monster, the monster presents himself as a potentially moral being—open to the beauty of nature, receptive to human affection. He becomes a killer, says the monster, not because he was made by human hands, but because his creator made the mistake of abandoning and rejecting him.⁹ Had Frankenstein been a better father, nothing bad would have come of his presumptuous scientific deed. Further, the monster offers to end his murderous rampage if he can only have a mate to pass the time with. He kills again only after Frankenstein refuses.

9. Shelley, *Frankenstein*, 83–84.

We might take leave to doubt the arguably self-serving views of a killer monster. In the narrative of *Frankenstein*, however, we are given yet another way in which matters could have turned out better. The monster is rejected by Frankenstein, and then later by the villagers he meets, because he is so disturbing to look at that only a blind man could bear him. What if Frankenstein had done a better job? Frankenstein himself admits to short cuts. The parts from which the monster is constructed are chosen in part for their size, large parts being easier to manipulate.¹⁰ Perhaps the monster's scale is what makes him so disturbing? It is an open question, as Shelley never describes *why* his looks engender such a negative response. Critic Chris Baldick argues that "Victor Frankenstein's error is to have confused the beauty of the dead limbs he has collected with the beauty of the whole organism."¹¹ Perhaps mismatched limbs are at the root of the monster's problem. All such speculation leaves the possibility open that Frankenstein *could* have created a better looking creature, who would then not have been rejected, and subsequently would have, by the monster's estimation anyway, been morally acceptable as well. Frankenstein, though periodically riddled with doubt, himself at times supports the idea that in playing God, as with other things, practice makes perfect. As he states in his dying monologue, "I have myself been blasted in these hopes [for scientific achievement], yet another may succeed."¹² Even after the initial mistake of making an ugly monster, Shelley leaves the possibility open that the construction of a mate for him would, by giving him companionship, give the story a happy ending. Science's mistakes, this would suggest, can be righted by further scientific endeavor.

H. G. Wells also presents a tripartite view of monster making, by the simple feature of putting three scientists on the isle. Unlike *Frankenstein*, *The Island of Dr. Moreau's* title character has no sympathetic side. While Wells's Moreau is an urbane man, in some respects less creepy than Charles Laughton's portrayal, or even Marlon Brando's, he is cold, utterly indifferent to the pain of others. His assistant, Montgomery, is more sympathetic in that he has some sensitivity to others' pain—but so much so that he can only go on by deadening himself with drink. His possession of a conscience is negated by his total inability to act upon it. Both of these

10. *Ibid.*, 38.

11. Chris Baldick, *In Frankenstein's Shadow: Myth, Monstrosity, and Nineteenth-Century Writing* (Oxford: Oxford University Press, 1987), 34–35.

12. Shelley, *Frankenstein*, 200.

scientists are destroyed by their moral failings. Moreau's egotism prevents him from responding to danger signals amongst the monster men; Montgomery's escapist tendencies leave him drunk at a critical moment when action is called for. The narrator, Prendick, however, gives an alternative to these negative views of science. Though he does not participate in Moreau's experiments, and is critical of the degree of pain Moreau inflicts on his subjects, he clearly states that he could accept these experiments if Moreau were inflicting pain only when necessary for a higher goal—not wantonly.¹³ At the novel's end, Prendick equates his experiences with the beast men with the bestial behavior that exists in human society, giving him a pessimistic view of the ultimate fate of humanity. He finds hope of salvation, however, in science—though shifting from the messiness of biology to what he presents as the purity of chemistry and astronomy. “There it must be, I think, in the vast and eternal laws of matter, and not in the daily cares and sins and troubles of men, that whatever is more than animal within us must find its solace and its hope.”¹⁴

Shelley does leave greater room for optimism than Wells. There is a subtle difference between the view that scientists can do godlike things well if they just practice, and the view that scientists who wield godlike powers *will* make a mess, but that the mess can be cleaned up by more science. In the second instance, one is left with the sense that it would be best if one didn't make messes in the first place, thus avoiding the need for a corrective dose of science, though too often the proverbial cat is already out of the bag. Modern science fiction, especially after the two World Wars, tends to follow Wells's train of thought. There are some exceptions however, in which dramatic tension is caused by some outside threat; scientists in this vein of fiction must take on godlike powers in order to save humanity from this threat. In some cases the threat is represented by aliens. A rather ponderous example of this may be found in the Lensman series by Edward E. Smith (the “father of space opera”). Smith frames the cosmic struggle between good and evil as a battle between two technologically advanced, psychic alien societies, the Arisians and the Eddorians. The fate of human society is the lynch pin in the struggle between these two groups, as humans possess (according to Smith) the will and ambition lacking in other aliens that will make them key allies. In the final

13. Wells, *Island of Dr. Moreau*, 83.

14. *Ibid.*, 156.

novel of this series, *Children of the Lens* (originally published as a serial novel in *Astounding Science Fiction* in 1947-48), two lineages of humans, carefully cultivated over eons by the Arisians' selective breeding program, converge to create a new type of human. With the aid of the advanced technology of the Arisians, these new humans become Guardians in place of the Arisians, guiding not only humanity but also sentient alien races in their evolution towards freedom and in the ultimate triumph of good over evil. While admittedly it is alien science that is presented as godlike, it can only be wielded by human beings when they achieve a certain level of native technology (in particular space travel), and ultimately humans replace both gods and aliens as the guardians of the universe. It is a rare, lofty vision of science. One of the few later authors that could be said to approach it is David Brin, in his Uplift series (including *Startide Rising* in 1983 and *The Uplift War* in 1987) in which human scientists "uplift" dolphins and chimpanzees to sentience and equal status, much to the irritation of alien races (the Patrons) who believe a strict protocol has been laid down for this by the ancient (and absent) Progenitors, from whom all the other main alien races descend. Since humans seemingly are not one of the Progenitors' offspring, a crisis ensues amongst the Patrons, who debate over whether one of their number illicitly uplifted human beings in the first place, and whether humans had the right to advance other Earth species. Like Smith's series, human beings (and dolphins and chimpanzees) are presented in a community of sentient aliens, but possess unique drive and vigor that allows them to compete with technologically superior foes.

A more typical optimistic view of science is less a matter of scientists becoming godlike than priest-like in the battle to save people from supernatural horrors. While more properly considered gothic or horror fiction rather than science fiction, these too are *Frankenstein's* literary children, injecting science into an older form. Another favorite of the monster movie set, Bram Stoker's *Dracula* readily falls into this category, with not one but two physicians battling the evil vampire. Similar battles of science against demonic horrors may be found in Richard Marsh's 1897 novella *The Beetle*, and the late nineteenth and early twentieth-century ghost stories of Sheridan Le Fanu and M. R. James. Even H. P. Lovecraft periodically pits scientists against ancient alien gods, as in "At the Mountains of Madness," his 1939 tale of a fateful Antarctic expedition. In none of these do the scientists really attain godlike powers, with the possible exception

of immunity to mind control (e.g. *Dracula's* Dr. Van Helsing and *The Beetle's* Sydney Atherton). In this subset of horror fiction, godlike powers can be resisted by ordinary science, but only attained by plunging into the occult oneself.

A few novels do, however, allow scientists to make a religion of science and gain godlike powers while keeping a positive outcome. One of these rare examples is Robert Heinlein's 1949 novel *The Sixth Column*, in which scientists stage an underground resistance of an invading foreign power by cloaking their movement in religious trapping and using technology to repel government spies. Gordon R. Dickson's *Necromancer*, though lighter on the science, also presents a techno-cult, one that results in, at the novel's end, the emergence of a new, more powerful human being with powers very much akin to omniscience. Dickson's 1962 novel interestingly pits science against science, as the Chantry Guild, as the cult is called, is devoted to destroying a society where science has been so successful in realizing a particular human idea of the perfect life that it has become stagnant to the point of despair—rather like Huxley's *Brave New World*. In any case, the common thread among these positive portrayals of scientists with godlike power is that this power is only legitimated when pursued to repel a potent threat, either a physical one or a threat to the soul or personality.

Particularly in the period after World War I, and again after World War II, the positive spin on scientists playing God is leavened with the thought that science needs to take on almost miraculous powers merely to preserve us from the destructive powers science has already unleashed. It is as if science has opened a Pandora's box of misery, and only science can retrieve those woes and wall them back up. The fiction of Edgar Rice Burroughs provides several early examples of this. One is *The Monster Men* (also published serially as *A Man without a Soul* and *Number 13*). This 1913 publication is often overlooked not only because it stands outside of Burroughs' series fiction (including the Mars series, the Tarzan series, the Venus series, and the Pellucidar series), but also because it is generally viewed as a crude copy of Wells' *Island of Dr. Moreau*. And in many respects it is; it has the scientist shifting his laboratory to an island to avoid persecution for his work, an army of monstrous men created by said scientist, and an assistant of dubious ethical character who helps train the monsters. It even presages the earliest film version by introducing a lovely female lead to be menaced by the monster men. One of the

definitive surveys of Burroughs' fiction dismisses the novel as "crudely told even for Burroughs, whose style was more frequently admirable for its vigor than its polish." Further, "one is led to wonder if Burroughs was not satirizing certain science fictional clichés, but so early in his career—and so early in the development of modern science fiction—this seems unlikely."¹⁵

The novel, however, has a little-recognized twist that plays with the sensibilities of readers steeped in the tradition of *Frankenstein*. Professor Maxon keeps trying to artificially create life with the mad preoccupation of creating the "perfect man" to marry his lovely daughter. What is most shocking to contemporary sensibilities is that he apparently does it with his last effort, Number 13. Not only is Number 13 (renamed Bulan) a fine specimen of manhood, but he also successfully wins the love of beautiful Virginia Maxon. *Frankenstein's* reviewers would have had apoplectic fits, a reaction Burroughs acknowledges by much agonizing over whether a "soulless creature" can be mated to a true human. When the monsters revolt, it is at the direction of Bulan, who leads them away from the cruel treatment of Maxon's assistant, Dr. von Horn. Burroughs strings along his readers until the very end, not only building up Bulan as an admirable character who overcomes Virginia's scruples about his ungodly creation, but also having the other monsters win a degree of esteem by sacrificing their lives fighting to save Virginia from the evil machinations of Dr. von Horn and a band of pirates. Only in the final moments of the story does Burroughs draw back, revealing that "Number 13" is actually the shipwrecked heir to a captain of industry. Suffering amnesia from his ordeal and lying unconscious, he was swapped with the *real* Number 13 by a Chinese cook who thought the experiment had gone on long enough. Despite this twist Burroughs not only forces his readers to consider the possibility of a human creation possessing a soul, but he also sets up a problem caused by a scientist that is only redeemed by that same scientist's creations. Without the aid of the other twelve monster men, "Bulan" (really Townsend J. Harper, Jr.) would not have had the muscle to defeat the pirates, and ultimately even Dr. Maxon comes to his senses to assist in the defeat of Dr. van Horn. The experiments are both part of the problem and part of the solution.

15. Richard A. Lupoff, *Edgar Rice Burroughs: Master of Adventure* (New York: Canaveral, 1965), 80.

The scientist with godlike powers who both creates a problem and then is convinced to solve it is a hallmark of Burroughs' later fiction as well. One of the most memorable of these characters is Ras Thavas, the scientific genius at the center of both *The Mastermind of Mars* from 1928 and *The Synthetic Men of Mars* published in 1940. Ras Thavas presents a somewhat darker version of the mad scientist than Professor Maxon, perhaps because World War I had given Burroughs, and the world, a taste of some of science's destructive powers. His power, however, is consistently portrayed as double-edged, capable of great good as well as great horror. One of the earliest descriptions of him in *The Mastermind of Mars* notes "He was never intentionally cruel; he was not, I am sure, intentionally wicked. He was guilty of the most diabolical cruelties and the basest crimes; yet in the next moment he might perform a deed that if duplicated upon Earth would have raised him to the highest pinnacle of man's esteem . . . He had a purely scientific mind entirely devoid of the cloying influences of sentiment, of which he possessed none."¹⁶

Ras Thavas's moral failings are to some degree part of the culture of his city, Tonool. "They denied deity, and in the same breath worship the fetish of science that they had permitted to obsess them quite as harmfully as do religious fanatics accept the unreasoning rule of their imaginary gods."¹⁷ In *The Mastermind of Mars*, Ras Thavas uses his amazing surgical skill to transplant healthy organs and even transplant brains from elderly customers into young healthy bodies. This causes a great deal of trouble, when evil tyrants stay in power by perpetually stealing the bodies of young captives, but only Ras Thavas can make things right in the end. In *The Synthetic Men of Mars* he goes one step further, creating an army of synthetic men to do his bidding. When they run amok and threaten all of Mars, only Ras Thavas (and the ubiquitous John Carter, Warlord of Mars) can defeat them.

In Burroughs' fiction, typically the scientist is so engrossed in his experiments that he doesn't even notice the moral complications until another non-scientist character, a man of action such as Townsend or John Carter—rechannels the scientist's efforts to the common good. What differentiates this type of fiction from works such as Whale's 1931 *Frankenstein* is that the science is instrumental both in the solution as

16. Edgar Rice Burroughs, *The Mastermind of Mars, and A Fighting Man of Mars* (Garden City, NY: Doubleday, 1973), 18.

17. *Ibid.*, 82–83.

well as the problem, instead of the scientist having to confront his creations by other, often cruder, means (such as pitchfork-wielding peasants). Examples of this view of science are much rarer than their less positive counterparts, and most commonly appear in American science fiction, European literature in general taking a more pessimistic view of science after World War I. One author who presents scientists who come to their own moral awakening is Jack L. Chalker. In *The Moreau Factor* Chalker presents an enclave of scientists who begin genetically manipulating people, kidnapping scientists, and altering them into strange beast-man amalgams to keep them from desiring escape. Although the main protagonists are two intrepid journalists, when it becomes apparent that the heads of this covert scientific body intend to unleash an epidemic of mutations on an unsuspecting world, a few scientists revolt, using their genetic knowledge and the enclave's technological resources to both thwart the epidemic and free the mutants already held in captivity. Chalker's dual edged view of science as both destructive and ultimately redeeming is a consistent feature of his fiction, also dominating his more famous *Well World* series. Though not strong on scientific characters, some of Larry Niven's fiction also presents technology that can both be used to crassly manipulate human bodies and lives, but also can, in better hands, save the world (as is the case in his *Ringworld* series and his independent novel from 1976, *A World Out of Time*).

One group not discussed here is the mass of science fiction presenting purely evil scientists who nonetheless wield godlike powers. It is not an inconsiderable body of work; as Andrew Tudor noted in his study of horror films between 1931 and 1960, at least one third present science as the cause of disaster, that third dominated by the archetype of the evil scientist.¹⁸ This view of science is not confined to film; it has a long literary tradition, going at least as far back as Sherlock Holmes' nemesis, Professor Moriarity (the "Napoleon of crime"), and appearing in other media as well, including children's cartoons—thus ensuring that the "mad scientist" will not be unknown for generations to come. But can they really be included in the rubric of "science playing God"? Certainly some evince powers like those of the scientists discussed above, creating life, destroying worlds, manipulating society solely for money, power, or just for the hell of it. It is a point open to debate, but one thing arguably sets

18. Andrew Tudor, "Seeing the Worst Side if Science," *Nature* 340 (Aug. 24, 1989) 589–92.

this group apart. The scientists discussed in this chapter have, as their fatal moral flaw, presumptiveness; when they are brought low it is because they have aspirations beyond human ability. When they succeed it is because they wield their extraordinary power in extraordinary circumstances, or because they have evolved beyond common mortals. The evil scientist, on the other hand, wins because society is too flawed to stop him or her, and loses because evil causes its own species of blindness.

Science and technology obviously have changed greatly since Shelley's time. The scientist working in isolation in his attic or cellar may linger in children's cartoons but is no longer believable in a world of expensive (and extensive) corporate or governmental laboratories. Through the twentieth century, the problems of robotic intelligence became at least as interesting as those of biological creations. The moral questions of *Frankenstein*, however, remain relevant. What are the proper limits of scientific inquiry? Can we evolve a higher moral standard to match the power of our evolving technology? What is our responsibility, not just to each other, but to the things we create? As the examples cited above suggest, no one answer sustains any generation, as we, like Victor Frankenstein, waver between doubt and hope.