Unnatural: The Heretical Idea of Making People
(Bodley Head, 2011)

Chapter 4
It Lives!

I ought to be thy Adam, but I am rather the fallen angel.
Mary Shelley
Frankenstein, p.96

You have created a monster, and it will destroy you!
Dr Waldman
Frankenstein (1931, dir. James Whale)

Mary Shelley's *Frankenstein* is with justification called a modern myth, one of the select group of novels that includes *Don Quixote*, *Robinson Crusoe*, *The Strange Case of Dr Jekyll and Mr Hyde*, and *Dracula*. *Frankenstein* is in some respects the now-familiar story of an arrogant, over-reaching Faust/Prometheus figure: a morality tale of anthropoesis in which the devil's assistance is no longer required to make the artificial being, which is why the creature itself is left to exact the retribution that tradition requires. But if the novel were no more than this, it would not have had such extraordinary resonance and longevity.

In part, Shelley was articulating an ambivalence towards the new sciences of the early nineteenth century, which appeared to be on the verge of explaining life itself. But there are many more layers to the story. It expresses ambivalence towards procreation itself – a process that might understandably be considered inherently treacherous by a woman whose own mother died as a result of her birth. And we can discern the perplexity of a woman in a man's world: a woman who could not even initially publish her novel under her own name, and who was living in the shadow of a famous and domineering father, not to mention a brash, egotistical lover and future husband. Observing men's boundless and perhaps ruthless creative desires, Mary Shelley imagines a man who, by making life itself, manages to usurp even this aspect of a woman's power.

Shelley's biographer Anne Mellor asserts that 'the idea of an entirely man-made monster is Mary Shelley's own', and that she 'created her myth single-handedly.' Not only are these claims emphatically wrong, but to make them is to distort and perhaps even undermine Shelley's achievement. The story did not spring newly minted from her imagination; probably no modern myth can be created that way. Shelley herself proclaimed her debt to myth with her subtitle: 'The modern Prometheus'. Many of the themes she explores are evident in the older anthropoetic tradition, given as it were new flesh. And insofar as Victor Frankenstein's tragedy is, on the surface, wholly secular and self-inflicted, it completes the romanticization of Faust that Goethe had begun.

Critics are divided between those who feel that *Frankenstein* is a forward-looking work, a prototype of science fiction that is deeply engaged with the scientific themes of the age, and those who regard it as ill-informed and rooted in obsolete notions of science – as critic James Rieger puts it, invoking 'switched-on magic, souped-up alchemy, the electrification of Paracelsus'. Yet it is precisely because *Frankenstein* has elements of both traditions – the modern and the ancient – that it occupies such an important nexus in the evolving myth of making people.* There seems to be little to be gained either by pretending that Mary Shelley was fully *au fait* with the latest scientific thinking on biology, chemistry and electricity, or by scoffing at her shaky grasp of the 'facts' as they were then known. Hers was inevitably a lay person's perspective, albeit impressive for an 18-year-old and all the more so given that young women were not supposed to take an interest in such things. It was the rich mixture of ingredients unwittingly used to cook up *Frankenstein* that gave it such cultural currency: among them, the Romantic ambivalence to science and technology, Mary Shelley's peculiar family history, and not least the uninhibited, even naïve, passion for Gothic narrative that helped prevent the book becoming a self-consciously calculated affair. If Percy Shelley had written it – and heaven knows he tried, heavily editing great swathes of the text – it would probably have been much better written, and far more dull and arid.

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*Science writer Jon Turney argues apropos Rieger that 'it is precisely the electrification of Paracelsus which marks out Frankenstein as a pivotal point in the transition from the supernaturally fantastic to the scientifically plausible.' This is true in spirit, but we must remember that the Paracelsian homunculus was also 'scientifically plausible' within the rationalistic natural philosophy of its time, and Paracelsus had (in his own mind) no time for superstition.

The problem of the father

William Godwin (1756-1836), Mary's father, was a radical thinker, an anarchist who considered that government corrupts society. Left to their own devices, he argued in *Enquiry Concerning Political Justice* (1793), people would find a natural morality. In 1797 Godwin married Mary Wollstonecraft, another liberal free-thinker and every inch his intellectual match. She was a friend of Tom Paine and William Blake and a former lover of the artist Henry Fuseli (whose famous painting *The Nightmare* encapsulates the Gothic vision of eroticized, subconscious terror), and she had an illegitimate daughter Fanny from another previous relationship. Wollstonecraft was already pregnant by Godwin when they married (the couple's previous antipathy to this patriarchal institution occasioned much soul-searching), but she died shortly after giving birth to her daughter Mary. It seems banal to observe that this must have fixed in Mary's mind the intimate connection between birth and death, as well as suggesting to her that ordinary childbirth was fraught with danger; but that does not make these things any the less true. The guilt she felt at her mother's death can only have been heightened by the way her father subsequently idealized his late wife.

Among Godwin's wide-ranging interests was an enthusiasm for the history of the 'occult sciences'. Two years before his death he published *Lives of the Necromancers*, an account of famous wizards, alchemists and seers from antiquity to the seventeenth century, including Paracelsus, Agrippa and Faust. Although Godwin called this a 'delineation of the credulity of the human mind', it is hard to believe that his motivation was purely educational – to demonstrate, as he put it, that 'the wildest extravagances of human fancy, the most deplorable perversion of human faculties, and the most horrible distortions of jurisprudence, may occasionally afford us a salutary lesson'. There is, on the contrary, a hint of approval in the book's opening statement that 'Man is a creature of boundless ambition.' That ambition fascinated Godwin; in his Faustian novel *St Leon*, the protagonist engages in an ill-fated quest for the philosopher's stone and the elixir of life.

Godwin kept elevated company – among the guests who came to debate politics, philosophy, science and literature at her father's house, Mary would have met William Wordsworth, Samuel Taylor Coleridge, Humphry Davy and William Hazlitt. In 1811 Godwin received a bold letter from a young poet named Percy Bysshe Shelley, who was eager to introduce himself to the noted philosopher, saying 'I am convinced I could represent myse[lf] to you in such terms as not to be thought wholly unworthy of your friendship.' This young man, who was already married at the age of 19, became a regular caller and something of Godwin's protégé. By the summer of 1814 Shelley dined with the Godwins every day, and at the end of June he and Mary declared their love for one another.

It took Godwin barely two weeks to discover the relationship, whereupon he forbade them to meet, despite Percy's assurances that his own marriage was moribund. As a result, on 18 July, Mary and Percy eloped to France, and she was ignored by her father for the next three and a half years. Very soon Mary was pregnant. Her daughter Clara was born prematurely the following February, and died within two weeks. This event provoked fantasies of reanimation: in 1815 Mary described a dream in which she brought her dead child back to life. Her second child, William, was born a year later, and during that summer of that year Mary and Percy went to stay with Byron and his doctor William Polidori on the banks of Lake Geneva.

Shelley later presented the genesis of her story as a dream that came to her after late-night discussion with Byron, Percy, and Polidori in Switzerland. They had talked of 'various philosophical doctrines… and among others the nature of the principle of life, and whether there was any probability of its ever being discovered and communicated.' While it would be uncharitable to doubt this account entirely, inspiration derived from dream-visions was a popular trope in the nineteenth century. Several scientists claimed to have made discoveries while in a dreamlike state, including August Kekulé (who deduced the structure of the benzene ring) and Dmitri Mendeleev (credited with the periodic table of elements). Besides, Polidori's account of the chronology of the Swiss excursion casts doubt on Mary Shelley's version of events, including the plausibility of the 'dream'.

Mary worked on the book until the following year, and when the proofs arrived she gave her husband (they were married at the end of 1816) 'carte blanche to make what alterations you please', an invitation of which he availed himself freely. The novel had been turned down by several publishers and ended up with Lackington, Hughes, Harding, Mavor and Jones, a somewhat disreputable firm specializing in occult and sensationalist literature. The book was published, in three slender but expensive volumes, on the day the Shelleys and their children, along with Mary's stepsister Claire, set sail for Italy; Percy Shelley never returned from that trip, for he was drowned in a storm while sailing to Livorno in 1822. Forced to support herself and her family, Mary became a professional writer, but her four other novels are more or less forgotten today.

A creation of science?

As the alleged prototype of the mad scientist, Victor Frankenstein is surprisingly sane. The question that motivates his anthropoetic experiments is no different from that which many scientists have pursued with patience and calm for centuries, and continue to do so today: 'Whence did the principle of life proceed?' His downfall is not that he asks the question, but that (in absurdly short order) he answers it, finding himself burdened with perilous knowledge. But it is perilous only because Frankenstein decides to use this knowledge to make a man. The reason we have so much freedom to interpret Shelley's message is that she never explains this crucial decision – Frankenstein advances straight to this goal as though an understanding of the 'astonishing secret' of life permits no other. He seems heedless of fame, wealth, reputation, and indeed does not even consider, as a true scientist might, that by conducting the experiment he can put his (unexplained) theory to the test. He is excited only by the thought that 'a new species would bless me as its creator and source' – an apparently egotistical motive that is however immediately moderated by altruism: 'many happy and excellent natures would owe their being to me.' Even if this is hubris, it feels thrust upon the hapless young Frankenstein at the insistence of his own creator, for nothing previously in his character has adequately prepared us for it. Frankenstein's ambition might seem unwise, even reprehensible, and yet it lacks the pride and arrogance tradition imparts to Faust. Frankenstein, like Job, ends up a pawn of his maker.

The lack of any real hypothesis-testing, and in fact of any real theory, in Victor's studies furnishes just one of the objections to the idea that he is a 'scientist' at all.* And if he is not, can Shelley really be deemed to be putting science on trial? There are disparate opinions on Frankenstein's credentials: science fiction writer Brian Aldiss, for example, says that Victor 'turns away from alchemy and the past towards science and the future', while James Rieger asserts that Shelley 'skips on the science'. Who is right?

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*The word itself was not coined until 1838, by Michael Faraday's colleague William Whewell, but the profession was already becoming recognized by the start of the century.

The tension between old and new understanding of natural phenomena is made explicit in the book. Victor develops a youthful interest in alchemy, having chanced upon a book by

Agrippa at the impressionable age of thirteen. For this he is ridiculed by his father, who tells him not to 'waste your time upon this; it is sad trash.' In the manner of all parental prohibitions, it merely spurs Victor to continue his studies with greater passion:

> When I returned home my first care was to procure the whole works of this author [Agrippa], and afterwards of Paracelsus and Albertus Magnus. I read and studied the wild fancies of these writers with delight; they appeared to me treasures known to few besides myself. I have described myself as always having been imbued with a fervent longing to penetrate the secrets of nature.

Shelley is fully aware of the anachronistic nature of Victor's enthusiasm. He says

> It may appear strange that such should arise in the eighteenth century; but while I followed the routine of education in the schools of Geneva, I was, to a great degree, self-taught with regard to my favourite studies. My father was not scientific, and I was left to struggle with a child's blindness, added to a student's thirst for knowledge.

It is not until he goes to study at the University of Ingolstadt that Victor's archaic convictions in natural philosophy are truly challenged. He meets first a professor named Krempe, 'an uncouth man, but deeply imbued in the secrets of his science', who pours scorn on Victor's interest in the alchemists:

> The professor stared. 'Have you', he said, 'really spent your time in studying such nonsense?' I replied in the affirmative. 'Every minute', continued M. Krempe with warmth, 'every instant that you have wasted on those books is utterly and entirely lost. You have burdened your memory with exploded systems and useless names… I little expected, in this enlightened and scientific age, to find a disciple of Albertus Magnus and Paracelsus. My dear sir, you must begin your studies entirely anew.'

It is inconvenient for a reading of *Frankenstein* as a simple critique of scientific hubris that what nonetheless leaves Victor disenchanted about modern science is its *lack* of ambition in comparison to the magical philosophers:

> I had a contempt for the uses of modern natural philosophy. It was very different when the masters of the science sought immortality and power; such views, although futile, were grand; but now the scene was changed. The ambition of the enquirer seemed to limit itself to the annihilation of those visions on which my interest in science was chiefly founded. I was required to exchange chimeras of boundless grandeur for realities of little worth.

What finally changes Victor's mind is not Krempe's ridicule but the measured, sympathetic lectures of the chemist Professor Waldman. In comparison to the alchemists, Waldman says,

> The modern masters promise very little… But these philosophers… have indeed performed miracles. They penetrate into the recesses of nature and show 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.

Waldman is here alluding to several recent developments in science and technology. Ballooning, using both hot air and the newly discovered hydrogen gas, dazzled spectators in the 1780s, and the first balloon crossing of the English Channel had been achieved in 1785. Oxygen, the breathable component of air, had been discovered by the English chemist Joseph Priestley in the 1770s*, and was named by Antoine Lavoisier in 1783. And Priestley had also written of the taming of electricity:

> What would the ancient philosophers, what would Newton himself have said, to see the present race of electricians imitating in miniature all the known effects of that tremendous power, nay, disarming the thunder of its power of doing mischief, and, without any apprehension of danger to themselves, drawing lightning from the clouds into an [sic] private room and amusing themselves at their leisure by performing with it all the experiments that are exhibited by electrical machines.

Yet Shelley has Waldman express these things using the imagery of the early Enlightenment, popularized by Francis Bacon, in which nature is a coy woman who 'veils' her 'secrets' and has to be 'penetrated'.

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*Priestley was a radical dissenter, and a friend of William Godwin.

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Waldman is more sympathetic to the efforts of the alchemists, although adamant that they wasted their energies on a quixotic project: 'these were men to whose indefatigable zeal modern philosophers were indebted for most of the foundations of their knowledge'. Under Waldman's guidance, Victor's interests turn towards chemistry, 'that branch of natural philosophy in which the greatest improvements have been and may be made.' His fateful anthropoetic experiment, Shelley hints, happens at the juncture of chemistry, physiology and the study of electricity and galvanism.

Shelley's description of this discovery has elicited some understandable mockery, for it is plain that she has not the slightest notion of how to make it plausible. Victor is a young student who has until that point known barely any modern science. Simply from spending 'days and nights in vaults and charnel-houses' looking at decaying corpses, he finds that

> from the midst of this darkness a sudden light broke in upon me – a light so brilliant and wondrous, yet so simple, that while I became dizzy with the immensity of the prospect which it illustrated, I was surprised that among so many men of genius who had directed their enquires towards the same science, that I alone should be reserved to discover so astonishing a secret.

Well might he be 'surprised', and it is hard not to judge this a lame account of the discovery. Victor's insight owes more to theological than to scientific tradition: the image of receiving special knowledge in a flash of divine illumination goes back to the Gnostic and Platonic beliefs of early Christianity, in which context it was invoked by St Augustine. This tradition was transferred in the Renaissance from the quest to know God to the quest to understand nature; Paracelsus and others spoke of becoming literally enlightened by the Light of Nature. This sort of revelation is won by grace alone, bypassing the need for endless prayer, or in the secular realm, endless study. And indeed,

the enlightened Victor sounds very much like the religious convert, at once in a state of both bliss and convenient ignorance about how he obtained his insight:

> The astonishment which I had at first experienced on this discovery soon gave place to delight and rapture… But this discovery was so great and overwhelming that all the steps by which I had been progressively led to it were obliterated, and I beheld only the result. What had been the study and desire of the wisest men since the creation of the world was now within my grasp… Life and death appeared to me ideal bounds, which I should first break through, and pour a torrent of light into our dark world.

And so, he says, 'I began the creation of a human being.' Because of the difficulty of joining the 'intricacies of fibres, muscles and veins' in the body parts he scavenges, Victor is forced to work at a superhuman scale, making a creature eight feet tall. (It is not explained how this is possible using limbs and bones taken from corpses of lesser stature.) The animation itself is achieved in a single paragraph, with barely a word of explanation:

> With an anxiety that almost amounted to agony, I collected the instruments of life around me, that I might infuse a spark of being into the lifeless thing that lay at my feet. It was already one in the morning; the rain pattered dismally against the panes, and my candle was nearly burnt out, when, by the glimmer of the half-extinguished light, I saw the dull yellow eye of the creature open; it breathed hard, and a convulsive motion agitated its limbs.

There is no thunderstorm, there are no crackling switches, no great laboratory filled with machines and flasks, no exultant cry of 'It's alive!'* The cynic is tempted to say: well, that was easy. But in retrospect this lack of detail plays in Shelley's favour, for there was no explanation she might have offered that would not now seem hopelessly crude and obsolete. Subsequent interpretations of the process have latched onto those suggestive words, 'a spark of being'. This alone intimates the involvement of electricity, and it is fairly clear that the hint was intentional. But did Shelley have anything more particular in mind for her anthropoetic procedure?

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*For that, we need to return to Goethe's homunculus, made in a laboratory 'after the style of the Middle Ages', full of 'extensive, unwieldy apparatus, for fantastical purposes', and attended by the exclamation of Wagner, Faust's Igor: 'It works!'

The Gothic science of reanimation

At the end of the eighteenth century ended, scientists found new ways to think about life. Previously regarded as a vague animating force described but not explained by the concept of vitalism, it now seemed that it might depend on the freshly discovered element oxygen, the gas dubbed 'fire air' when first isolated by the Swedish chemist Carl Wilhelm Scheele. Joseph Priestley discovered that breathing was easier when one inhaled pure oxygen, and in Lavoisier's view this substance was the principle of combustion and

respiration, connecting it implicitly to the ancient notion that life was instilled either by fire or by breath.

Mary Shelley was familiar with the chemistry of the day, having read Humphry Davy's *Elements of Chemical Philosophy* in 1816. Davy was, however, suspicious of the 'chemical physiologists', who tried to reduce life to mere chemistry. He said of them, repeating the old, sexually charged metaphor of 'hidden nature',

> Instead of slowly endeavouring to lift up the veil concealing the wonderful phenomena of living nature; full of ardent imaginations, they have vainly and presumptuously attempted to tear it asunder.

Notice that here Davy seems to be objecting not so much that such ideas are wrong, but that they are indecorous. Life, in his view, seems still to be a blushing maiden who needs protecting so that her mysteries might remain intact. Davy's protégé Michael Faraday, later the foremost expert on electrical phenomena, felt, perhaps for religious reasons, that the innermost mysteries of nature lay outside the realm of science.

The emerging discipline of chemistry was sometimes accused of harbouring ambitions beyond its station. By simultaneously investigating the composition of organic, naturally occurring compounds and developing its skills in chemical synthesis, it was complicating distinctions between nature and art – much as alchemy had done previously, but with greater demonstrative force. At the same time, the suspicion of Faustian hubris that once attached to alchemy was now transferred to chemistry. This is apparent in Honoré de Balzac's novel *La recherché de l'absolu* (1834), which portrays an early version of the 'mad scientist' in the person of Balthazar Claes, allegedly a chemist but very obviously cut from the cloth of the legendary obsessive alchemist. Claes neglects his wife and family in his quest for the 'Absolute', the fundamental element of all matter which the ancient Greeks called *hyle* and which here stands obvious proxy for the Philosopher's Stone:

> 'I shall make metals', he cried; 'I shall make diamonds, I shall be a co-worker with Nature!'
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> 'Will you be the happier?' she [his wife] asked in despair. 'Accursed science! Accursed demon! You forget, Claes, that you commit the sin of pride, the sin of which Satan was guilty; you assume the attributes of God… Analyse fruits, flowers, Malaga wine; you will discover, undoubtedly, that their substances come, like those of your water-cress, from a medium that seems foreign to them. You can, if need be, find them in nature; but when you have them, can you combine them? Can you make the flowers, the fruits, the Malaga wine? Will you have grasped the inscrutable effects of the sun, of the atmosphere of Spain? Ah! Decomposing is not creating.'

It is not, then, for the attempted creation of life, let alone specifically human life, that Claes's wife accuses him of impiety; rather, her implication is that *any* effort to replicate natural substances and objects is sinful. Alchemy was condemned for the supposed inferiority of its productions and for its suspected reliance on demonic assistance, but not because the fabrication in itself was improper. In Balzac's dialogue, in contrast, we find an early intimation of an inviolate, reified nature.

Balzac's anti-scientific agenda is clear enough. He abhorred chemistry, which he considered impious not because it could rival God's creation but because it destroyed it. In *La peau de chagrin* (1831) he calls chemistry 'that fiendish employment of decomposing all things', and deplores what he considers to be its totally materialistic view of life. Balzac says that, whereas the mechanistic conception of life advanced by René Descartes (the topic of the next chapter) at least requires a divine 'operator', chemists assert that life sprang from matter of its own accord – as Balzac puts it, that 'the world is a gas endowed with the power of movement'. Chemistry, then, could be interpreted as an atheistic science – even as a nihilist one, as personified in the fictional chemists Dr Sturler in Alexandre Dumas's *Le comte Hermann* (1849) and Bazarov in Ivan Turgenev's *Fathers and Sons* (1862).

Other writers criticized chemistry as an embodiment of narrow-minded, bourgeois acquisitiveness. In *Jezebel's Daughter* (1880), Wilkie Collins does not stray far from the medieval narrative of the obsessive, deluded alchemist in his portrait of a German chemist named Dr Fontaine, who ruins himself in pursuit of gold, diamonds and the philosopher's stone. A more contemporary image is presented in the person of Flaubert's petty, scheming pharmacist Homais from *Madame Bovary* (1857). In one way or another, then, chemistry was regarded with suspicion in nineteenth-century literary circles.

There was another new 'substance' that offered itself as a candidate for the 'astonishing secret' of life. Even before the monster is created, Shelley implies that electricity plays a part in Victor's discovery. While on holiday near the Jura mountains, he sees a thunderstorm during which an old oak tree is struck and shattered by lightning, and he is so impressed by this demonstration of electricity's primal power that it leaves him momentarily doubting his alchemical mentors:

> I have never beheld anything so utterly destroyed. Before this I was not unacquainted with the more obvious laws of electricity. On this occasion a man of great research in natural philosophy was with us, and excited by this catastrophe, he entered on the explanation of a theory which he had formed on the subject of electricity and galvanism, which was at once new and astonishing to me. All that he said threw greatly into the shade Cornelius Agrippa, Albertus Magnus, and Paracelsus, the lords of my imagination.

When Victor encounters again his escaped creature in Geneva, it is during another thunderstorm: 'a flash of lightning illuminated the object and discovered its shape plainly to me.' Shelley is even more explicit about the electrical nature of her anthropoetic vision in the introduction to the 1831 edition of the novel: she describes here how, in the late-night conversation in Switzerland that preceded her dream, the idea was mooted that 'Perhaps a corpse would be reanimated; galvanism had given token of such things.'

The perilous power of electricity, particularly as manifested in lightning, was in the late eighteenth century compared to the fire of Prometheus stolen from Zeus's thunderbolts. After a Swedish scientist named Georg Wilhelm Richmann was killed by lightning in 1753 while conducting an experiment like that made famous (if not actually performed)

by Benjamin Franklin, the *Gentleman's Magazine* said that 'we are come at last to touch the celestial fire, which if… we make too free with, as it is fabled Prometheus did of old, like him we may be brought too late to repent our temerity.' And the Frenchman Guillaume Mazéas wrote of his own studies of electricity that 'The fable of Prometheus is verify'd.'

An Italian physiologist named Luigi Galvani offered good reason to suppose that electricity might hold the key to life itself. Using static electricity stored in a 'Leyden jar', a kind of capacitor which provided the power source for most early experiments in electrical phenomena, Galvani showed that frog's legs and other animal limbs could be made to twitch by the flow of current. In 1791 he published his *Commentary on the Effects of Electricity on Muscular Motion*, in which he argued that a vital force called 'animal electricity' is what impels living things into motion – a theory subsequently known as galvanism. Galvani believed that there is an 'electric fluid' that is made in the brain and which passes along nerves to produce stimulation in the muscle fibres – an idea not so far from the truth (for nerves do carry electrical currents which activate muscle contraction), although this electrical activity is merely an aspect of life in higher organisms and not its cause. Galvani discovered that he could generate an electrical current from two different metals placed in contact with one another, constituting a primitive kind of battery. In 1800 this arrangement was developed by Galvani's compatriot Alessandro Volta into the so-called Voltaic pile, a stack of copper and zinc plates connected by brine-soaked cloth or card. But whereas Galvani believed that the electricity in his experiments issued from the animal tissue and flowed into the metals, Volta believed (rightly) that it was produced at the junction of the metals themselves. He took a more materialistic view of electricity, seeing it not as some mysterious vital principle but as an ordinary property of matter. Volta's cell was studied by Davy, who deduced the fundamentally electrical nature of chemical reactions and used the pile to isolate several new elements by electrolysis.

Galvanism won public attention through the energetic and rather theatrical promotional efforts of Galvani's nephew and disciple Luigi Aldini, who demonstrated the electrical 'reanimation' of a severed ox's head in front of the Prince of Wales and other British nobles in 1802. Still more compelling and suggestive was Aldini's experiment in 1803, in which he instilled a ghastly semblance of life in the corpse of a criminal who had been recently hanged at Newgate Prison in London and brought swiftly to the College of Surgeons. As Aldini wrote,

> The jaw began to quiver, the adjoining muscles were horribly contorted, and the left eye actually opened… The action even of those muscles furthest distant from the points of contact with the arc was so much increased almost to give an appearance of re-animation… Vitality might, perhaps, have been restored, if many circumstances had not rendered it impossible.

On another occasion, Aldini reported that he made a corpse rise up as if about to walk.

It was commonly thought at this time that one could travel reversibly across the boundary of life and death; experiments with paralysing drugs had apparently demonstrated as much. In 1814 an explorer named Charles Waterton brought back from an expedition to

the Amazon samples of the deadly poison curare, which he proceeded to test on animals. A donkey was 'killed' by a dose and then wholly resuscitated:

> A she-ass received the wourali poison [curare] in the shoulder, and died apparently in ten minutes. An incision was then made in its windpipe, and through it the lungs were regularly inflated for two hours with a pair of bellows. Suspended animation returned. The ass held up her head, and looked around; but the inflation being discontinued, she sunk once more in apparent death. The artificial breathing was immediately recommenced, and continued without intermission for two hours more. This saved the ass from final dissolution; she rose up and walked about.

The implication is that 'death' may not be final and that surgical intervention can restore life.

Moreover, the association of electricity with life was widely suspected.* The popular science lecturer Adam Walker, a friend of Joseph Priestley, wrote of electricity that

> Its power of exciting muscular motion in apparently dead animals, as well as of increasing the growth, invigorating the stamina, and reviving diseased vegetation, prove its relationship or affinity to the *living principle*. Though, Proteus-like, it eludes our grasp; plays with our curiosity; tempts enquiry by fallacious appearances and attacks our weakness under so many perplexing subtilties; yet it is impossible not to believe it is the soul of the material world, and the paragon of elements!

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* Not everyone made this connection, however. The English anatomist William Lawrence was dismissive, writing in 1819 that 'the contrast between the animal functions and electric operations is so obvious and forcible that attempts to assimilate them do not demand further notice.' Such opinions were not rare.

Electricity was touted as a wonder cure: the Scottish doctor James Graham created a 'Temple of Health' in London at which people took electric baths (these are still popular in Japan) or sat in chairs that delivered mild shocks. Graham sold an 'aethereal balsam' which contained a gum allegedly mixed with 'ether, electricity, air, or magnetism'. He is said to have cured the Duchess of Devonshire's infertility with his 'electrotherapy' in 1779.

One of the most startling claims of 'electrically induced life' appeared in the 1830s, shortly before the second edition of *Frankenstein* was published. A wealthy English gentleman scientist in Somerset named Andrew Crosse reported that he had created insects by passing an electrical current through solutions of mineral salts. Crosse had previously been hailed by the eminent British geologist William Buckland for his studies of 'electrical crystallization' of minerals, and it was in the course of this innocuous work that he made his remarkable discovery. He dripped a solution of potassium silicate and hydrochloric acid over a lump of mineral iron oxide connected to the poles of a Voltaic pile, and observed whitish protuberances sprout on the surface of his 'electrified stone'. These developed in a bizarre and quite unforeseen manner. 'On the 26th day', he later wrote, 'each figure assumed the form of a perfect insect, standing erect on a few bristles which formed its tail.' He went on:

> It was not until the 28th day, when I plainly perceived these little creatures move their legs, that I felt any surprise, and I must own that when this took place, I was not a little astonished… In the course of a few weeks, about a hundred of them made their appearance on the stone.

The smaller of these insects had six legs, the larger ones eight, and they appeared to be of the genus Acarus (a kind of spider), 'but of a species not hitherto observed.'

Crosse's experiments were reported in the *Somerset County Gazette* in 1836, prompting a subsequent description in the *Times*. This brought them wide attention, and they became a topic of vigorous debate among British scientists. The findings, still as yet unpublished, were discussed at the 1836 meeting of the British Association, and in February of the following year it was rumoured that none other than Michael Faraday had reproduced them. That was quite untrue – Faraday hadn't even tried, and he issued rapid denials. He later mentioned them dismissively in a letter to his friend Christian Friedrich Schönbein at Basle, saying 'With regard to Mr. Crosse's insects etc. I do not think anybody believes in them here except perhaps himself and the mass of wonder-lovers.' But the mere hint of Faraday's involvement was enough to sustain credulity, and several genuine attempts were made to reproduce the results. A surgeon named William Henry Weekes in Sandwich, Kent, claimed to have done so, and the relation between electricity and life was grist for the mill at the newly formed London Electrical Society, formed in 1837, of which Crosse became a member. A chemist and surgeon named Andrew Smee tried to establish a new discipline, electro-biology, in which electricity was considered the animating principle of all organic tissues. And almost as though it were required by some peculiar narrative symmetry, an explicit connection to *Frankenstein* was forged when Crosse was visited by Ada Lovelace, Byron's daughter and a friend of Michael Faraday, who portrayed him in an account of her visit as the archetypal dishevelled mad scientist.

Some commentators disapproved of Crosse's work because they considered it atheistic. One clergyman called it 'a very dark business, and such as no Christian man ought to engage in', and both Crosse and Weekes received threats of violence. Crosse vigorously denied these accusations, asserting that his experiments were simply realising hitherto unknown facets of God's laws. He sought, with little success, to avoid being cast in the role of a modern Faust or Prometheus:

> I have met with so much virulence and abuse, so much calumny and misrepresentation, in consequence of the experiments which I am about to detail, and which it seems in this 19th century a crime to have made, that I must state… for the sake of truth and the science which I follow, that I am neither an 'atheist', or a 'Materialist', nor a 'self imagined creator', but a humble and lowly reverencer of that Great Being, whose laws my accusers seem wholly to have lost sight of.

Crosse's claims were never substantiated. But whatever else one makes of this strange episode, it reveals both how electricity was seen as a vital force and how a suggestion of impiety now clung to the alleged synthesis of any living thing.

The nature of the beast

It is possible that Mary Shelley meant to suggest links between her tale and the alchemical tradition of anthropoesis, although we can't be sure how much of the alchemical imagery in *Frankenstein* is intentional, unconscious, or just coincidental. There is, for example, the wedding motif, recalling the 'chymical wedding' that creates the philosopher's stone: first in the monster's desire for a 'bride' and then in the terrible wedding night of Victor and Elizabeth, when the monster kills Elizabeth in retribution for Victor's reneging on his promise to make the creature a mate (a scenario proposed by Percy Shelley). And the dismemberment of this female creature by Victor parallels the mutilation of an allegorical figure in alchemical texts reaching back to Zosimos. There is probably more conscious use of alchemy in Victor's suggestion that 'To examine the causes of life, we must first have recourse to death.' He says that 'I became acquainted with the science of anatomy: but this was not sufficient; I must also observe the natural decay and corruption of the human body.' As we saw earlier, it was only through putrefaction and rebirth that the homunculus could arise.

The monster is, however, no homunculus, no shining little being of light. In some ways the vision Shelley offers, in considerable detail, of the artificial man is quite original, although aspects of it were foreshadowed. Importantly, the creature, although of disturbing size, is not obviously hideous – and yet everyone reacts to it as if it were. Or rather, the true source of its ugliness is never disclosed. Its appearance is all the more terrible because it was supposed to be beautiful: it is as if this aspiration makes the shortfall especially unbearable:

> His limbs were in proportion, and I had selected his features as beautiful. Beautiful! Great god! His yellow skin scarcely covered the work of muscles and arteries beneath; his hair was of a lustrous black, and flowing; his teeth of pearly whiteness; but these luxuriances only formed a more horrid contrast with his watery eyes, that seemed almost of the same colour as the dun-white sockets in which they were set, his shrivelled complexion and straight black lips.

In what follows, it is not clear whether Victors's 'breathless horror and disgust' expresses his revulsion at the creature's appearance – in other words, the failure of his effort to make a thing of beauty – or comes from a dawning realization of the enormity of what he has done.

Shelley invites our sympathy for the monster, whose murderous acts are the consequence of Victor's rejection. This is no brute, but a creature who speaks with eloquent anguish of his fate. The justice of his claim to Frankenstein's love is beyond doubt:

> How dare you sport thus with life? Do your duty towards me, and I will do mine towards you and the rest of mankind… I am thy creature, and I will be even mild and docile to my natural lord and king if thou wilt also perform thy part, the which thou owest me. Oh, Frankenstein, be not equitable to every other and trample upon me alone, to whom thy justice, and even thy clemency and affection, is most due.

As literary critic Chris Baldick says, 'He is perhaps more human than his creator' – a theme revisited many times in subsequent stories of artificial beings, particularly in the robots and androids of science fiction (think, for example, of the mercy shown by the android Roy Batty to his hunter Rick Deckard at the climax of Ridley Scott's movie *Blade Runner*).

Shelley felt that the perversion of the creature's character brought on by Victor's refusal to 'parent' lay at the heart of the novel. Percy Shelley can be reasonably assumed to speak for his wife too when he wrote, in one of the 'reviews' that close associates of an author felt licensed to produce in the nineteenth century, that the most important moral of the story was this:

> Treat a person ill, and he becomes wicked… It is thus that, too often in society, those who are best qualified to be its benefactors and its ornaments, are branded by some accident with scorn, and changed, by neglect and solitude of heart, into a scourge and curse.

Frankenstein indeed gives a poor showing of himself in comparison to his creation, and there can be no doubt that Mary Shelley intended that we should condemn his behaviour along Faustian lines: why else would she have subtitled the novel 'The Modern Prometheus'? As Victor warns Captain Walton when he dictates his tale in the Arctic,

> 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… Seek happiness in tranquillity, and avoid ambition, even if it be only the apparently innocent one of distinguishing yourself in science and discoveries.

Anne Mellor sees this as an admirable, 'feminist' critique of scientific over-ambition, asserting that *Frankenstein* is 'our culture's most penetrating literary analysis of the psychology of modern 'scientific' man, of the dangers inherent in scientific research, and of the exploitation of nature and of the female implicit in a technological society.' There would certainly be value in a critique of this kind, both then and now; but the analysis on display in Frankenstein's comment is gauchely simplistic, betraying a censorious conservatism reminiscent of reactionary medieval clerics like St Bernard of Clairvaux inveighing against the evils of curiosity. Shelley, via Victor, seems to be saying not only that we must beware the temptation of hubris but that science, and the acquisition of any knowledge, is inevitably corrupting. Philosopher of science Joachim Schummer argues that the novel 'suggests both psychological and historical determinism, according to which the "seeds of evil" necessarily develop in the course of the scientific endeavour.'

Besides, if Mellor is right to say that Shelley 'contrasted what she considered to be 'good' science – the detailed and reverent description of the workings of nature – to what she considered 'bad' science, the hubristic manipulation of the elemental forces of nature to serve man's private ends', she is hardly deserving of praise on that account. To Mellor, Shelley celebrates 'that scientific research which attempts to describe accurately the functions of the physical universe' while warning of the dangers of 'that which attempts to *control* or *change* the universe through human intervention'. Mellor thus presents *Frankenstein* as a harbinger of every subsequent technological nightmare, culminating in the Hiroshima bomb. And this, of course, merely reiterates the old prejudice against 'applied' science as opposed to 'pure' – the ancient suspicion of *techne*. Quite aside from the fact that these distinctions of pure and applied are imaginary in the first place (the scientific enterprise is not so neatly sectioned), are we really being asked to believe that

Erasmus Darwin's natural history did more to benefit humankind than Humphry Davy's miners' lamp?

Mellor's accusation that Victor's experiments 'violated the rhythms of nature' and 'transgressed against nature' – that they are, in a word, unnatural – must be read as another expression of the reified and moralistic vision of an idealized 'nature'. She argues that the novel anticipates the danger inherent in our new-found ability 'to manipulate life-forms in ways previously reserved only to nature and chance.' It is now only a matter of time and social will, Mellor says, before we see 'the replacement of natural childbirth by the mechanical eugenic control systems and baby-breeders envisioned in Aldous Huxley's *Brave New World* or Marge Piercy's *Woman On The Edge of Time*.' We will come to those works later, in what I hope will be a more considered view of their relationship to Frankenstein and its antecedents. What interests me more here is the unreflecting conservatism that *Frankenstein* has unleashed in Mellor's otherwise thoughtful analysis. It has, you might say, touched a raw nerve.

Surprisingly, of all the sources for Mary Shelley's novel, the one Chris Baldick discounts is the Faust myth. He does so partly on the basis that there are no actual demons invoked in Frankenstein, and partly because it seems Shelley was unaware of Goethe's retelling until after she had written her book. That is itself surprising, given that she had clearly read *The Sorrows of Werther*, on which the monster discourses. In any case, neither point particularly favours Baldick's contention. If, as seems very likely, Shelley wished to make some comment on modern science, it stands to reason that she should eliminate supernatural elements from the story. And Goethe's Faust is of course not the only one – William Godwin himself wrote of the more traditional quasi-historical figure.

To the extent that *Frankenstein* is a Faustian tale, it can be positioned within a body of such works from the late eighteenth and the nineteenth centuries that portray obsessive, secretive and over-ambitious chemists or skilled craftsmen – that is, Faust figures who are *artists* in the original sense. Balzac's *La recherche de l'absolu* is one such, and so is Herman Melville's *The Bell-Tower*, a tale of an ancient engineer who makes a mechanical man. In Nathaniel Hawthorne's *Ethan Brand*, the eponymous lime maker returns to his kiln after having travelled the world in search of the Unpardonable Sin, a quest in which he is rumoured to have received diabolical assistance. Brand has found this sin in his own heart: it is 'the sin of an intellect that triumphed over the sense of brotherhood with man and reverence for God, and sacrificed everything to its own mighty claims'. He has become educated beyond all university professors, but in doing so had lost his humanity:

> The Idea that possessed his life had operated as a means of education; it had gone on cultivating his powers to the highest point of which they were susceptible; it had raised him from the level of an unlettered laborer to stand on a star-lit eminence, whither the philosophers of the earth, laden with the lore of universities, might vainly strive to clamber after him. So much for the intellect! But where was the heart? That, indeed, had withered, – had contracted, – had hardened, – had perished! It had ceased to partake of the universal throb. He had lost his hold of the magnetic chain of humanity. He was no longer a brother-man, opening the

> chambers or the dungeons of our common nature by the key of holy sympathy, which gave him a right to share in all its secrets; he was now a cold observer, looking on mankind as the subject of his experiment, and, at length, converting man and woman to be his puppets, and pulling the wires that moved them to such degrees of crime as were demanded for his study.
>
> Thus Ethan Brand became a fiend. He began to be so from the moment that his moral nature had ceased to keep the pace of improvement with his intellect.

In the end, the morally shattered Brand casts himself into his own lime-burning kiln, like the semi-legendary Empedocles, the cataloguer of the four classical elements, who is said to have leapt into Mount Etna.

The personal and the political

If Mary Shelley's novel is a parable about the dangers of a Promethean desire to make life, it is not that alone; there are many other ways to read it and its influence.

Mary's family history is inflected throughout the story. Most obviously, the murder of Victor's young brother William by the monster lends itself to several, not necessarily exclusive, interpretations. William was the name not only of Mary's father but also of her half-brother by his second marriage (who remained ever in her father's favour), and furthermore of her own son, born several months before the Swiss trip. One can thus make arguments for fantasies of patricide, fratricide or infanticide – or, it must be said, simply admit that William was a common name, as for that matter was Elizabeth, the name of Victor's ill-fated fiancée but also of Percy Shelley's sister and his mother.

Some have claimed that Victor Frankenstein is a portrait of Percy, although it seems much more likely that Mary's husband is represented by Victor's faithful friend Henry Clerval. Victor seems more obviously interpreted as Mary's father, who at the time that the book was conceived had abandoned Mary much as Victor disowns his own progeny. The ambivalence she must have felt towards William Godwin (to whom the book was dedicated) might, in this view, explain that we are not led wholly to condemn Victor, particularly in the revised 1831 text. The creature is left desperately seeking an affective family bond, which at one point he almost finds in the surrogate family of the De Laceys. Like Mary, the monster has a father but no mother, and the questions he asks could easily have come from Mary's lips: 'Why was I? What was I? Whence did I come?'

For her novel's epigraph Shelley quotes from Milton's epic of creation and transgression *Paradise Lost* words spoken by Adam:

> Did I request thee, Maker, from my clay
> To mould me man? Did I solicit thee
> From darkness to promote me?

This challenge to God's authority harks back to the defiance shown by Satan, which was regarded by the Romantics as a heroic act of rebellion. Godwin himself took that view: in his *Political Justice* he called Satan's insubordination a 'principled opposition to tyranny'. And Frankenstein's monster is intoxicated by *Paradise Lost*, saying that

> It moved every feeling of wonder and awe that the picture of an omnipotent God warring with his creatures was capable of exciting. I often referred the several situations, as their similarity struck me, to my own. Like Adam, I was apparently united by no link to any other being in existence; but his state was far different from mine in every other respect. He had come forth from the hands of God a perfect creature, happy and prosperous, guarded by the especial care of his Creator; he was allowed to converse with and acquire knowledge from beings of a superior nature, but I was wretched, helpless, and alone. Many times I considered Satan as the fitter emblem of my condition, for often, like him, when I viewed the bliss of my protectors, the bitter gall of envy rose within me.

Despite the monster's qualifying comments, this and the novel's epigraph give ample cause to identify in the creature some spiritual kinship with Adam. But spiritual only; unlike all other humans, the creature is no biological son or daughter of Adam, for he is 'united by no link to any other being in existence'. For devout readers this suggested the worrisome possibility that the monster might be free from original sin. He *does* commit grave sins, of course, yet these arrive not from his own impulse but because of the injustice meted out by his creator. Could Shelley be implying that Adam's sin too was ultimately his Creator's doing? Or that Satan's fall was spurred by God's indifference and tyranny? There is plenty here to discomfort the believer, although none of it was really new to the anthropoetic tradition.

In Romantic circles there was at this time something of a cult of Prometheus, who they celebrated as a noble iconoclast. In the year that *Frankenstein* was published, Percy Shelley was working on his own version of the Prometheus myth, *Prometheus Unbound* (1820),* which in its very title promises to overturn Aeschylus's account by celebrating the Titan's defiance of Zeus (here Jupiter):

> Fiend, I defy thee! with a calm, fixed mind,
> All that thou canst inflict I bid thee do;
> Foul Tyrant both of Gods and Human-kind,
> One only being shalt thou not subdue…

---

*Brian Aldiss's 1973 science-fiction novel was cheekily called *Frankenstein Unbound*, and it has a scientist from the twenty-first century transported back in time to 1816, where in postmodern fashion he meets Victor Frankenstein, Mary Shelley, Percy Shelley and Byron.

Byron published his own Gothic Faustian tale *Manfred* in 1817, as well as a poetic telling of the Prometheus myth in which he exemplifies mankind's sublime ambition:

> In the endurance, and repulse
> Of thine impenetrable Spirit,
> Which Earth and Heaven could not convulse,
> A mighty lesson we inherit.

Anne Mellor argues, however, that Mary Shelley's novel does not so much draw on this Romantic tradition as challenge it, revealing it (and by extension her husband, Byron, and her father) to be in thrall to lofty ambition at the expense of cultivating human relationships and facing up to responsibilities. It would be a fair criticism – both Byron and Shelley showed beastly selfishness on occasion – but to find this message in *Frankenstein* seems to require not a little hindsight. If it were there, it seemed wholly to escape the notice of Mary's husband, who devoted much effort to promoting his wife's book (having insisted on 'improving' it first).

That *Frankenstein* was written by a woman is central to its themes, but some feminist readings speak more to our own times than to Shelley's. The novel provokes a torrent of gender-based paranoia in Anne Mellor.* 'By stealing the female's control over reproduction', she says,

> Frankenstein has eliminated the female's primary biological function and source of cultural power. Indeed, for the simple purpose of human survival, Frankenstein has eliminated the necessity to have females at all… One of the deepest horrors of this novel is Frankenstein's implicit goal of creating a society for men only… there is no reason that the race of immortal beings he hoped to propagate should not be exclusively male.

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*A simple charge of misogyny and fear of women carries more weight. It's striking, for example, that Victor fears a female creature will, like Eve and Pandora, be even more wicked than a male: 'She might become ten thousand times more malignant than her mate and delight, for its own sake, in murder and wretchedness.' Or she might be capricious, deserting the creature for 'the superior beauty of man'.

Even if we set aside the implication here that women have no cultural power unless they reproduce (we will come back to that idea later), this is a strange interpretation of the plot. If by 'human survival' one means perpetuation of creatures made from human parts (a very odd definition, I think you'll agree), Victor Frankenstein seems to have done away with the necessity of 'ordinary' human males too, so long as the monsters learn how to make themselves and their organs are endlessly recyclable. (There seems to be no suggestion that his creature is immortal.) More significantly, what the creature craves most is a female mate, and in Frankenstein's refusal to grant that wish it seems more fruitful to discern a metaphor for the father's refusal to allow his child to develop a sexual relationship, rather than the creator's literal refusal to make females. If Frankenstein's 'implicit' goal is to make a male-only society, it is so deeply implicit that he never once hints at it. And while it is certainly a recurrent theme of modern speculations on artificial procreation that they instil visions of single-sex utopias, these are, as Mellor points out, as often all-female as they are all-male (she doesn't specify whether both are equally 'horrific').

Besides, it is immensely important, from the perspective of how *Frankenstein* develops the legend of anthropoesis, that the creature *does* seem in principle to possess the ability to procreate. This, after all, is partly what drives Victor to refuse his monster's demand:

> One of the first results of those sympathies for which the daemon thirsted would be children, and a race of devils would be propagated upon the earth who might make the very existence of the species of man a condition precarious and full of terror… I shuddered to think that future ages might curse me as their pest, whose selfishness had not hesitated to buy its own peace at the price, perhaps, of the existence of the whole human race.

This is today a very familiar narrative of anthropoetic science fiction: our artificial creations take over the world and cast us aside. Conquest by the synthetic organism is the fear behind a great deal of antipathy to biotechnology: what if genetically modified crops, or engineered microorganisms, or nanotechnological replicators proliferate out of control? This is not to say that such fears are always groundless; but we must recognize that they go back much further than the modern era of biological manipulation. And as far as artificial humans are concerned, their roots surely lie in the fear of the outsider: the terror that another culture or race will overwhelm and supplant our own, be it the Jews, the Muslim infidels or the immigrants. The xenophobia evident in Mary Shelley's letters and diaries may well have played its part in creating this vision: constantly depreciating the locals during her sojourns in continental Europe, she wrote that the French peasants are 'squalid with dirt, their countenances expressing every thing that is disgusting and brutal', while the Germans are 'exceedingly disgusting'.

On the other hand, Mellor's suggestion that, '*Frankenstein* is a book about what happens when a man tries to have a baby without a woman' is, so to speak, pregnant with implications – not least because, as she goes on to say, it means 'the novel is profoundly concerned with *natural as opposed to unnatural modes of production and reproduction*' (my italics). It is not entirely obvious that this is indeed what the book was about for Mary Shelley, but there can be little doubt that it became a major theme in the story's later incarnations. Mellor's claim that *Frankenstein* articulates fears of pregnancy is especially pertinent. Will my child kill me, the book asks (as Shelley may at some level have felt she killed her mother)? Might it be monstrous and repulsive? Will that happen even if, or especially if, I try to make it perfect? It is precisely *because Frankenstein* emerged from older myths that it could serve these discourses.

There is also a broader social interpretation of the themes of monstrosity and unnaturalness. The idea that there is a natural order to the world and, by implication, something unnatural and undesirable about its contravention, played out not only in science and theology but in politics. To many people in England in the wake of the English Civil War, the usurpation and execution of the sovereign had the character of a disturbingly unnatural event, no matter what they felt about the iniquities of Charles I's reign. The same feeling surfaced during the turmoil of the French Revolution, which was condemned by conservatives in England for violating the natural order of monarchy. They considered that political systems deviating from traditional hierarchy were not just unnatural but, as a result, monstrous: not only grotesque, misshapen and liable to end badly, but also, following St Augustine's view of monsters, moral aberrations.

The association of political systems with the human body is ancient, but was popularized by Thomas Hobbes in *Leviathan* (1651), published just after and partly motivated by the Civil War. Here he referred explicitly to the state in anthropomorphic terms, and moreover stressed that this composite being was human-made:

> 'For by Art is created that great Leviathan, called a Common-wealth, or State, (in Latine, Civitas) which is but an Artificiall Man; though of greater stature and strength than the Naturall.'

To Friedrich Schiller, who along with Goethe laid the foundations of Romanticism, society is 'an ingenious mechanism' made from 'the piecing together of innumerable but lifeless parts'. And as a product of art, this composite state stood at risk of degenerating into monstrosity, as it did in times of revolution. To conservatives such as Edmund Burke, the republic in France was doomed to fail because it cobbled together an unnatural body politic as if by some grotesque anthropoetic magic:

> [We] should approach to the faults of the state as to the wounds of a father, with pious awe and trembling solicitude. By this wise prejudice we are taught to look with horror on those children of their country who are prompt rashly to hack that aged parent in pieces, and put him in the kettle of magicians, in hopes that by their poisonous weeds, and wild incantations, they may regenerate the paternal constitution, and renovate their father's life.

Burke even accused the Revolutionaries of being alchemists, sorcerers and 'fanatical chemists'. 'Out of the tomb of the murdered monarchy in France', he wrote, 'has arisen a vast, tremendous unformed spectre.' These arguments were vehemently opposed by those sympathetic to the Revolution, including Mary Wollstonecraft, and they were probably discussed in the Godwin household.

It's not surprising, therefore, that after *Frankenstein* was published, the monster and its presumed mode of creation were made a metaphor for the French republic. To the Calvinist historian and writer Thomas Carlyle*,

> France is as a monstrous Galvanic Mass, wherein all sorts of far stranger than chemical galvanic or electric forces and substances are at work; electrifying one another, positive and negative, filling with electricity your Leyden-jars, – Twenty-five millions in number! As the jars get full, there will, from time to time, be, on slight hint, an explosion.

Some stage adaptations of *Frankenstein* indeed implied explicit parallels between the violence of the monster and the mob.

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*The conservative Carlyle had dismissed *Frankenstein* in 1818 (while assuming it was penned by Percy Shelley) after having read only a review of it, saying that it seemed to be just 'another unnatural disgusting fiction.'

Given Mary Shelley's distaste for the 'squalid' and 'brutal' masses, it is quite conceivable that she intended some identification of the monster with the unruly mob. This association was made explicit by Elizabeth Gaskell in *Mary Barton* (1848), where she initiates the long tradition of confusing the monster with its creator:

> The actions of the uneducated seem to me typified in those of Frankenstein, that monster of many human qualities, ungifted with a soul, a knowledge of the difference between good and evil.
>
> The people rise up to life; they irritate us, they terrify us, and we become their enemies. Then, in the sorrowful moment of our triumphant power, their eyes gaze on us with a mute reproach. Why have we made them what they are; a powerful monster, yet without the inner means for peace and happiness?

As Baldick points out, this reactionary position rather undermines *Mary Barton*'s supposedly egalitarian message by expressing horror of the working classes if they are free to rebel against their masters. The workers, says Baldick, are here portrayed as 'an unfortunate but morally irresponsible creature which lashes out blindly and mutely at its begetter in the deluded belief that the employers are in some way to blame for its misery.' At the same time, Gaskell reiterates the belief that such an artificial creature can have no soul, and endorses the notion, by then well established, that the monster is a brute with a child-like intelligence.

Moulding the monster

Frankenstein was published anonymously; it was not until the second edition in 1823 that the author's identity was revealed. Unsurprisingly, many were scandalized by it. The *Quarterly Review* called it 'a tissue of horrible and disgusting absurdity', while the *Edinburgh Magazine* said (more significantly) that it was 'bordering too closely on impiety'. 'These volumes', thundered the *British Critic*, 'have neither principle, object, nor moral.'

But it's easy to overplay this kind of negative reaction. The simple fact is that the novel was not particularly widely read (the first edition ran to only 500 copies, and they did not sell quickly), and remained little known until, just five years after its first publication, the story was brought to the theatre. In 1823, the English Opera House on the Strand in London staged *Presumption: or the Fate of Frankenstein*, an adaptation by Richard Brinsley Peake. There was fresh outrage; one leaflet about the play implored

> Do not go to the Opera House to see the Monstrous Drama, founded on the improper work called FRANKENSTEIN!!! Do not take your wives, do not take your daughters, do not take your families!!! – The novel itself is of a decidedly immoral tendency; it treats of a subject which in nature cannot occur. This subject is PREGNANT with mischief; and to prevent the ill-consequences which may result from the promulgation of such dangerous Doctrines, a few zealous friends of morality, and promoters of the Posting-bill (and who are ready to meet the consequences thereof) are using their strongest endeavours.

Needless to say, this is the kind of publicity theatre-managers dream of.

Indeed, even Peake recognized that, deliciously parodying his own staging in a piece of frippery written that same year for the London Adelphi Theatre called *Another Piece of Presumption*. The play features a tailor called Frankinstitch, and presents a discussion of the controversy between one Mr Devildum and the Adelphi's stage manager Mr Lee:

> *Lee*: But Mr. Devildum – have not I heard that there is something of an immoral tendency in this story?
> *Devildum*: So much the better – every body will come and see it – The moment I told my wife of its being improper she went and laid out her last 2 shillings in the gallery.

The fact that Peake could write and stage such a self-referential frivolity testifies to the impact and notoriety of his *Presumption*. And this was not the only burlesquing of the story to follow in the wake of the play's success.

As the title implies, *Presumption* insisted on telling a simplistic, morally instructive fable: 'The striking moral exhibited in this story', the theatre's publicity stated, 'is the fatal consequence of that presumption which attempts to penetrate, beyond prescribed depths, into the mysteries of nature.' Seek not to know high things, as St Paul put it. Everything in the play is exaggerated to serve this message. Victor Frankenstein becomes the crazed lunatic of later tradition, the mad scientist working in a laboratory filled with flasks of bubbling liquid. Here he is given the wild exclamation when his experiment succeeds: 'It lives! It lives!' He even gets his grotesque (and significantly foreign) assistant, not yet Igor but called Fritz, who drives the point home when he announces that 'like Dr Faustus, my master is raising the Devil.' Frankenstein compares himself to Prometheus, while Clerval confesses to Fritz that he sometimes suspects Frankenstein of being more alchemist than chemist. Alchemy was the animating principle of all the nineteenth-century stage version.

Despite all this, Mary Shelley seemed to enjoy the show when, notified of its existence by her father, she went along to a London performance. 'The story is not well managed', she said with considerable understatement, but she was impressed with the portrayal of the creature by the actor T. P. Cooke, and admitted that 'I was much amused, & it appeared to excite a breathless eagerness in the audience.' One wonders if her tolerance towards the liberties taken with her story had more than a little to do with the fame that the play brought her.

One of the most effective gimmicks of *Presumption* was to give the role of the monster in the programme no name or title: Cooke was indicated only as playing '————'. The monster was thus an almost ghostly presence, not quite a part of this world. More significantly, it was dumb and shambling, with 'the mind of an infant'. This was no pristine invention, but drew on theatrical archetypes of the time: the Wild Man of pre-literate cultures ('savages', as they would have been called, like those encountered by Darwin on the voyage of the *Beagle*), the bumbling and white-faced Clown, the 'fairground freak'. Like *The Tempest*'s Caliban, these characters have an ambivalent ontogeny: they are part human, part alien, powerful yet inarticulate. In fact, Steven Earl Forry, who has examined the stage adaptations in detail, suggests that Caliban was 'perhaps the most formidable influence on this role'. Like Caliban, he says, 'the Creature's deformed body mirrors an evil nature.' If this is so, then it turns Frankenstein by association into an old-fashioned magician, more Prospero than Humphry Davy gone bad.

The stage monster is typified in the frontispiece to Henry Milner's lurid 1826 stage adaptation, *Frankenstein: or, The Man and the Monster!* (Figure 4.1): ugly, with unkempt hair, and dark-skinned to signify his savagery (although in the play Frankenstein says of his creature 'Instead of the fresh colour of humanity, he wears the livid hue of the damp grave.') Yet the creature is also given the capacity for gentleness that was so notably used in James Whale's myth-defining 1931 film. In Milner's play he rescues Frankenstein's mistress Emmeline and her child when they become lost in a storm, and attempts to befriend the child.

Figure 4.1 The frontispiece to Henry Milner's *Frankenstein: or, The Man and the Monster!* (1826)

Milner also cemented the tradition of giving Frankenstein a comic assistant, here an absurd, boasting clown called Strutt, recalling the peacock-like Face, the servant of the title character Subtle in Ben Jonson's *The Alchemist*. In a conversation between Strutt and an Italian peasant Lisetta, Milner introduces a crowd-pleasing bawdiness, at the same time suggesting that Frankenstein's asexual creation of a being is unnatural and perverted, even onanistic:

> *Strutt*: I really do think, at least it seems so to me, that my master is making a man.
> *Lisetta*: Making a man! – What is not he alone?
> *Strutt*: Yes, quite alone.

It was said that, as is so often the case, the waggish or buffoonish sidekicks Fritz and Strutt often stole the show.

So Mary Shelley lost control of her creation just as quickly and surely as Victor Frankenstein did. And she capitulated to the consensus, rewriting the novel to make it more explicitly a morality tale about the tragic consequences of hubris. In the introduction to the 1831 edition, despite her insistence that her revisions had introduced no new ideas or circumstances, she offered an old-fashioned, quasi-theological and Faustian reading somewhat at odds with the original text. Her dream vision, she insisted

here, was of a 'pale student of unhallowed arts' whose creation 'mock[s] the stupendous mechanism of the Creator of the world.'

But some of Shelley's revisions ended up blurring rather than simplifying the moral of the tale. More was attributed to fate – to predestination, the 'silent workings of immutable laws' that Victor senses in the groaning glaciers of the Alps – than to his free choice. Victor calls his decision to study chemistry a matter of 'chance – or rather the evil influence, the Angel of Destruction.' And his benign instructor in that subject, Waldman, now becomes a Mephistophelean figure, bewitching him with 'words of fate, enounced to destroy me'. As he listens, Victor feels 'as if my soul were grappling with a palpable enemy.' The narrative therefore now tugs in different directions: it is on the one hand more baldly Faustian, warning of the dangers of 'presumption' (Shelley even appropriates this word to describe Frankenstein's actions), while on the other absolving Victor by making him a victim of greater forces, as if in a Greek tragedy. To the extent that he is culpable, it is not because of his personal failure to parent his creation but because he has from the outset transgressed some unwritten 'natural law'.

Many of the changes introduced for stage versions of *Frankenstein* were retained when the story was brought to the cinema screen. The first movie adaptation was directed by J. Searle Dawley in 1910; it was simply called *Frankenstein* and featured the popular actor Charles Ogle as the monster. Ogle's character appears in clownish whiteface, with a misshapen body and twisted grimace and the Wild Man's shock of unruly hair. The sledgehammer morality continues: 'Instead of a perfect human being', reads the text frame, 'the evil in Frankenstein's mind creates a monster.'

The most influential retelling in modern times is James Whale's 1931 movie, which was itself based not directly on the novel but on another stage adaptation called *Frankenstein: An Adventure in the Macabre*, written by Peggy Webling. The genesis was complicated: Webling's play was adapted for Broadway by John Balderston, but Universal Studios bought the movie rights before the play opened. It was Balderston who introduced electricity to Frankenstein's laboratory ('a large intricate machine – like a galvanic battery'), and the crucial re-animation scene takes place in a splendidly Gothic laboratory (in the movie, Universal re-used the set from their 1931 movie *Dracula*), witnessed by the hunchbacked servant Fritz as well as by Waldman and Victor's fiancée Elizabeth: Frankenstein's secrecy has given way to grandiose theatricality.

Balderston and Whale also insisted on the Faustian and religious themes. A prologue to the film states that

> 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.

To emphasize the point, Victor cries out as his creature stirs into life, 'Now I know what it feels like to be God!' – a line that proved too blasphemous for the censor when the movie was first released. Balderston turns Waldman into a moderating moral influence, in whom science and religion are in ideal balance. During the animation sequence, Waldman cries out 'In the name of Religion, I forbid your experimenting' – to which 'Henry' Frankenstein* replies 'In the name of Science – remain and verify it!'

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*Why Frankenstein and Clerval (here given the surname Moritz) have their first names exchanged is not clear. Psychological interpretations beckon, but the names had been garbled in any case by earlier stage adaptations.

The adaptations of Webling and Balderston brought to the foreground a theme that can be discerned in Shelley's novel: that Frankenstein's creature is his monstrous Döppelganger. Henry formalizes the pre-existing conflation of creature and creator when he says 'I call him by my own name – He *is* Frankenstein.' Webling even stipulated that the creature should appear on stage dressed just like Frankenstein: a parodic Mr Hyde. Forry sees this as a symbol of the warped, self-directed (a)sexuality that attached to contemporaneous research on artificial parthenogenesis and later to cloning: it suggests, he says, that 'the self can only engender the self in a parthenogenetic, even homoerotic form of creation.' Unlike Jekyll, however, Whale's Frankenstein is not destroyed by his shadow self. After plunging from the windmill in the final climax, Frankenstein is unconvincingly seen recovering in bed – an ending apparently imposed by Universal after preview audiences reacted badly to the scientist's demise in an early cut. And after all, this gave scope for the sequels *Bride of Frankenstein* (1935) and *Son of Frankenstein* (1939).

The hardest blow to the psychological core of Shelley's tale comes from the crude way in which the monster's pathological nature is rationalized. There is no longer the bitter tumult of the rejecting father and abandoned progeny; instead, Fritz simply bungles his assignment to steal the 'perfect brain' from Waldman's medical school. He drops the intended specimen and quickly grabs a replacement jar, which happens to be the brain of a criminal (helpfully labelled 'Disjunctio cerebri – Abnormal brain'). Needless to say, this all rather undermines the moral purported at the outset: Frankenstein's attempt to make a human is abortive not because it defies God and nature, but because he couldn't get the staff. That, however, is doubtless to think too hard about the matter.

Whale's monster is the lumbering Boris Karloff, his fleshy seams still exposed and his head held on by a bolt through the neck. Like the stage versions, he is inarticulate and brutish. On the one hand this combination of immense strength and childlike intelligence appeals to our sympathy in the same manner as poor Lennie in John Steinbeck's *Of Mice and Men*. But on the other hand it removes the creature further from the human sphere. With his jerky movements and semi-mechanical appearance, he is informed by the new, industrial archetype of the artificial human: the prototype is no longer the savage 'wild man', but the robot.

It's tempting to see all this as a reflection of Hollywood's insistence only to paint with the most elementary colours, and that's not altogether unfair. Perhaps we shouldn't make too much of it: few books can claim to have had their subtlety enhanced by a transfer to the screen. But Whale's movie is a reminder that a narrative which pitches science against God still had currency in the early twentieth century. And even if Victor Frankenstein is here explicitly Faustian, he is not the unsympathetic Faust of Spiess's biography in the late sixteenth century. Even as he became more ruthless, as in Peter

Cushing's portrayal in Hammer Horror's *Curse of Frankenstein* (1957), he never degenerates into a caricature of pure evil. While superficially we are told to deplore the hubris of anthropoesis, we are still being dared to admire it.

Some critics argue that the 'coarsening' of Shelley's fable, including that which she wrought herself, takes us away from its 'true' meaning. But precisely the opposite is true. There is much in the original *Frankenstein* that is highly personal, wracked by the mental convulsions of Shelley's situation and background. But in the retellings, in the elisions and misattributions, we see how the story both fits and alters the evolving myth of anthropoesis, just as the different versions of Greek myths or fairy tales elaborate on their psychological meanings. As Chris Baldick says,

> The truth of a myth… is not to be established by authorizing its earliest versions, but by considering all its versions. The vitality of myths lies precisely in their capacity for change, their adaptability and openness to new combinations of meaning. That series of adaptations, allusions, accretions, analogues, parodies and plain misreadings which follow up on Mary Shelley's novel is not just a supplementary component of the myth; it *is* the myth.

Society had its own views about how this tale was 'meant' to go, and soon enough these popular preconceptions asserted themselves. As of 1982, there had been 130 works of fiction based on *Frankenstein*, along with 50 fiction series, more than 40 straight adaptations in film (and 80 that use Frankenstein in some way), and more than 80 stage productions. The anthropoetic scientist and his creature have provided a channel through which we may examine our love-hate relationships with the monster and the artificial man.

The creator and his creation

Baldick suggests that Victor Frankenstein provided a template for all subsequent Mad Scientists: 'After *Frankenstein*, the figure of the scientist in fiction has, almost as a rule, to be that of an aspiring young medical student who dabbles in galvanism, and whose long hours in the seclusion of the laboratory engender or reinforce a misanthropic, or at best insensitive, disregard for his social bonds and duties.' And Andrew Tudor, an expert on the cultural influences of horror movies, says that Frankenstein 'towers above all others in the classical development of horror-movie science.' Victor's descendants are not, however, evil megalomaniacs driven by lust for power, but share the ambivalent idealism of defiant Prometheus:

> Devoted to the pursuit of knowledge at the expense of humane values, he and his successors (whether or not they bear his name) are permitted the equivocal comfort of defensible scientific motives. 'Where should we be if nobody tried to find out what lies beyond?' asks Henry Frankenstein in [Whale's] *Frankenstein*. 'Have you never wanted to look beyond the clouds and stars, to know what causes trees to bud and what changes darkness into light? But if you talk like that people call you crazy.'

And it is not the mere pursuit of knowledge that drives these deluded savants, but the quest for the ultimate mystery, for Balzac's *absolu*, now not the philosopher's stone but

the ‘secret of life’. As Dr von Niemann puts it in the 1933 movie *The Vampire Bat* (which cannibalized both *Frankenstein* and *Dracula*, not just in subject matter but for its sets and actors),

> Is one who has solved the secret of life to be considered mad? Life, created in the laboratory. No mere crystalline growth, but tissue, living, growing tissue that moves, pulsates, and demands food… Think of it. I have lifted the veil. I have created life. Wrested the secret of life from life.’

The deficiency in these men (all of them men) is not hubris alone, but the fact that their wilful goals are pursued with a furtiveness that erodes behavioural norms. That is certainly the case in the other modern myth of the scientific transmutation of life, Robert Louis Stevenson’s *Dr Jekyll and Mr Hyde*, in which Jekyll confesses that

> Had I approached my discovery in a more noble spirit, had I risked the experiment while under the empire of generous or pious aspirations, all must have been otherwise, and from these agonies of death and birth I had come forth an angel instead of a fiend.

The same failing is found in H. G. Wells’ monster-maker Dr Moreau, who, even while he was still working in England and enjoying the respect of the scientific community, conducted his abhorrent research stealthily. The 1932 movie *Doctor X* takes the image to camp extremes, creating for the eponymous doctor a medical academy in an isolated old mansion on Long Island where he conducts unorthodox cross-examinations on people suspected a series of cannibalistic murders. ‘The human mind will only stand so much’, says his butler, ‘we’re all a bit strange up here.’* (This movie, one of many attempts to cash in on the success of Whale’s Frankenstein film, has a plot involving the creation of ‘synthetic flesh’.) These remote, ancient settings establish a subliminal link with the magical roots of anthropoesis. We will later see how early research on IVF, and recent claims of human cloning, were also tainted by the suspicion they were being conducted in seclusion.

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*The campiness, including the creepy butler, informs *The Rocky Horror Picture Show* (1975), which namechecks the movie in its opening song: ‘Doctor X will build a creature.’ The star of *Rocky Horror* is of course Dr Frank-N-Furter, who seeks to create life so that he might make a perfect sexual plaything – an instance of many a myth being spoken in jest.

The surreptitious, obsessive behaviour exhibited by Frankenstein and his successors is often associated with sexual dysfunction. This is a subtext in *Frankenstein* itself, for the monster literally prevents Victor from finding sexual union with his new wife Elizabeth on their wedding night by murdering her. The whole tenor of that encounter is charged, in Victor’s imagination, with sexual energy. He speaks of his monster ‘consummating’ his crimes by (as Victor anticipates) murdering him, and there is a perhaps unconscious ambiguity in the way he describes this fear on his wedding night: ‘I reflected how fearful the combat which I momentarily expected would be to my wife.’ The convoluted syntax seems to betray a horror in Victor’s mind at the ‘consummation’ of his own marriage in

sexual struggle. And as Anne Mellor points out, Victor embraces his wife 'with ardour' only after the monster has strangled her: he 'most ardently desires his bride when he knows she is dead' – and therefore when she can no longer pose a sexual threat.

It is arguably a repression of sexual desire that has spawned the monster in the first place, just as Paracelsus warned that misdirected sexual imagination could cause sperm to grow into monstrous shapes inside the body. Mellor observes that 'Frankenstein dedicates himself to his scientific experiment with a passion that can be described only as sexual... In place of a heterosexual attachment to Elizabeth, Victor Frankenstein has substituted a homosexual obsession with his creature.' Such libidinal displacement or distortion is a common attribute of mad scientists in general, and of 'people makers' in particular. The sociologist of science Evelyn Fox Keller thinks it is in fact part of the mindset of the (predominantly male) modern scientist: she found in a psychological survey of physicists at Harvard University that many 'feel uncomfortable with their emotions and sexuality.' Make no mistake, then: anthropoesis is considered to come with a dash of sexual perversion or dysfunction.

So much for the maker; what did *Frankenstein* tell us about the created being? Shelley introduces a loathsomeness that was not present in the homunculus tradition, and also latent savagery and acute loneliness. The artificial being stands apart from humankind, and suffers on that account; but he is resentful for this same reason, and the resentment may turn murderous. Shelley's novel represents a bifurcation of the anthropoetic tradition in which the path taken is subsequently only the dark one: human perfectibility by human agency is no longer an option. As D. H. Lawrence wrote,

> The magicians knew, at least imaginatively, what it was to create a being out of the intense *will* of the soul. And Mary Shelley, in the midst of the idealists, gives the dark side to the ideal being, showing us Frankenstein's monster. The ideal being was man created by man. And so was the supreme monster.

It remains unclear if Frankenstein's monster has a soul, but there is a strong suspicion that he does not. Martin Willis, a specialist in nineteenth-century science fiction, argues that the monster should be regarded as little more than a sophisticated, fleshy version of the mechanical automata popular around this time, which I consider in the next chapter. In this sense, says Willis, he is a creation of materialist science, which has 'given him life but stripped him of a soul.' Yet Shelley herself leaves the question open: she straddles the materialism of scientists such as Volta and a transcendental vitalism evident in those inclined toward Romanticism (including Galvani), who suspected that electricity might be a spiritual substance, the basis indeed of the human soul. In refusing to be explicit about the creature's soul, Willis says, Shelley artfully brings together both points of view and allows them to coexist in the novel:

> In leaving the creation of the monster equivocal, the vital turning point between inertia and animation can be appropriated by either materialist or Romantic science. Moreover, without either of these opposing philosophies able to defend their position from textual evidence, they both exist simultaneously, caught in a moment of equivalence at the very center of the novel.

Equally significant for the evolving concept of the artificial being are the characteristics that were forced by cultural consensus upon Shelley's 'hideous progeny'. The most important changes to the monster on which society at large seemed to insist were:
- that he no longer display the nobility and acute intelligence that Shelley's creature shared with Goethe's homunculus, but instead be shambling and inarticulate, an object of pity and fear rather than awe;
- that he be very visibly non-human, to the point that his synthetic nature is impossible to misconstrue (he is green/flat-headed/quasi-mechanical/zombie-like).

These characteristics serve to accentuate what may be the most significant general attribute of the creature: his *unnaturalness*. As Mellor puts it,

> Nature prevents Frankenstein from constructing a normal human being. His unnatural method of reproduction produces an unnatural being.

Mellor even describes this as an act of 'raping nature'. To her, Mary Shelley 'envisions nature as a sacred life-force' (a vision that we are being invited to applaud). As a result of his unnatural origin, says Mellor, the creature is evil – although she remains unsure whether it is born that way or is corrupted by the rejection of its maker. Again, this all makes naturalness a moral issue. To find compassion for the stumbling Boris Karloff, we are being challenged to have sympathy for the devil.