Biopunk Dystopias
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In 1923 the famed genetics professor J.B.S. Haldane, demonstrating a penchant for provocation and prophecy, gave a talk on the future of science, claiming that scientific research would flourish in the years to come and that he would make no prophecies rasher than those made by H.G. Wells in his works (26). One very important aspect of science, to Haldane, had been left out of Wells’s imaginary due to the shifting scientific interests of different times, and that was the development of the biological sciences. Physics and chemistry, with their ‘scientific ideas [… of] flying and radiotelegraphy,’ were, by 1923, merely ‘commercial problems’ whereas, he believed, the future ‘centre of scientific interest [lay] in biology’ (26). Some of his prophecies were radical, but proved quite accurate. Haldane was the first to foresee the necessary shift in energy production, from coal and oil to wind and sunlight, and proposed hydrogen-powered machinery (30). In regard to biology, his claims were the most outrageous and garnered the strongest opposition at the time. In a science-fictional essay, supposedly to be read by an undergraduate student of Cambridge University in 2073, on the development of biology in the twentieth century, he claimed, among other things, the birth of the first test-tube baby and genetic selection (41). His account was rather optimistic, both in terms of time frame (positing 1951 as the birth date of the first child by in vitro fertilization, whereas in reality it took until 1977) and in terms of its potential to alter the species and offer ‘great possibilities in the way of the direct improvement of the individual’ (43).

What is even more interesting than his claim about the importance of biological scientific progress, genetics in particular, is his claim that
the inevitable human reaction towards it is repulsion. Drawing on the Greek mythological figures of Prometheus and Daedalus, Haldane argues,

The chemical or physical inventor is always a Prometheus. There is no great invention, from fire to flying, which has not been hailed as an insult to some god. But if every physical and chemical invention is a blasphemy, every biological invention is a perversion. There is hardly one which [...] would not appear [...] as indecent and unnatural. (36)

Whereas Prometheus would be subject to the revenge of the gods, Daedalus – for his biological creation of the Minotaur – would go unpunished by Zeus and Poseidon: The biologist ‘is not concerned with gods’ (37). Instead, Haldane claims, the biologist is faced with ‘the universal and age-long reprobation of a humanity to whom biological inventions are abhorrent’ (37). The physicist threatens divine power in order to claim it for humanity, becoming in stature a god himself (or a Titan, as Prometheus) and by his creation in effect granting humanity its superior status, whereas the biologist (especially the geneticist) threatens humanity, robbing it of its natural place, and is thus seen as a threat to and corruption of the human claim to godliness. Prometheus stole fire from the gods, bringing the light of progress to humanity and securing for himself a token position in the mythology of humankind, whereas Daedalus’s inventions served as warnings that technology never quite turned out for the good and always demanded a price that was too high to pay – the youths of Athens sacrificed to the Minotaur.

The Prometheus myth carries with it the utopian vision of a better future for humanity – fire, light, and technological progress facilitate this change and allow for a utopian view of what is to come. The hero himself might be punished by the gods, but his deed allowed for humanity to grow and become stronger. The myth of Daedalus is born of a similar utopian vision – his inventions are ingenious and tell of humanity’s potential for technological progress – but the tables are turned when it comes to the repercussions. When Daedalus builds a device for the cursed queen of Crete, Pasiphae, which allows her to be mounted by the Minoan bull, and thus in effect helps birth the first xenogenetic creation, the Minotaur, it is not he that is punished but humankind. Because the Minotaur is an unnatural creation, its abhorrent nature shows in its diet of human flesh: From the bull that was supposed to be sacrificed springs forth a monster, to which humans must regularly be sacrificed to keep it appeased. Unwittingly, Daedalus had punished humanity for his unnatural creation by not considering the long-term
effects of what he had invented. His tale, as utopian in vision as it might be, rather shows a dystopian stance towards social and technological progress – it is a cautionary tale.

Haldane shared this view of dystopian warning, cautioning that the biological improvements foretold might also prove morally challenging, that the scientists facilitating them were destined ‘to turn good into evil,’ and that (with the experience of the First World War still fresh in his mind) the flame of curiosity had already once before ‘become a world-devouring conflagration’ (48). He closes his essay with the dire image of the scientist as Daedalus ‘as he becomes conscious of his ghastly mission, and proud of it’ (49), before citing a poem by British poet Robert Buchanan.

The poem, ‘Homunculus; or the Song of Deicides’ from Buchanan’s mystic work The Book of Orm (1870), imagines the homunculus, a being representing human scientific endeavor through its origin in scientific creation, who is carefully guided by Satan’s hand to become the destroyer of gods:¹

\begin{quote}
It seems but yesterday the dim \\
And solitary germ of him \\
Glimmer’d most strangely on my sense, \\
While, with my microscope intense, \\
I search’d a Beast’s brain-cavern dark:— \\
A germ—a gleam—a cell—a spark— \\
Grown to Homunculus, who rides \\
To my sad Song of Deicides. (Buchanan 229)
\end{quote}

The conflict described in the poem and identified with by Haldane is that of science and religion, in which, as Freeman Dyson aptly points out, Daedalus – the scientist – has become ‘destroyer of gods and of men’ (59). In Dyson’s view, Haldane was not a pessimist though; his essay rather needs to be read as warning against ‘the evil consequences of science,’ while at the same time giving his readers the option to overcome the evil and providing the moral leadership to do so (60). Dyson also agrees with Haldane’s prediction about genetic engineering and its socio-political implications, as well as the necessity to overcome its use for evil.

¹ The poem is misquoted by Haldane and has thus for a long time not been attributed. Patrick Parrinder was the first to identify it as Buchanan’s work and to thus draw the connection between Haldane’s Daedalus figure and Satan, the lyrical ‘I’ of the poem (Parrinder 250).
Seventy-five years after Haldane wrote his Daedalus essay, reality has caught up with prophecy and warning, and biology (focused in public view on genetics) has taken center stage as the science that promises the most radical changes to modern-day lives. As Michael Reiss argues, ‘Genetic engineering raises issues about the nature of life itself, about what it is to be human, about the future of the human race, and about our rights to knowledge and privacy’ (13). And Brian Stableford comments that, until recently, the ‘growth of knowledge in the biological sciences has lagged behind that in the physical sciences,’ that the ‘age of mechanical inventions began in the early 19th century, that of biological inventions is only just beginning’ (122).

The life-altering progress and radical inventions of the physical sciences, indeed the creation of the scientific concepts as such, are strongly interconnected with both the humanist project and ideas of modernity. The scientific revolution, and especially Newtonian physics, is the basis of our conception of the human as a rational being, in control of its own progress and given free agency in its actions. Building on this legacy is the nineteenth-century notion of humanism – a worldview, however else defined, convinced ‘of the centrality of the “human” itself’ (Davies 20). It is this uniquely human view of the world that connects humanism not just to science, but to progress and the project of modernity: industrialization, capitalism, sociology, and politics. The concepts humanism and modernity seem intertwined and remain ideologically central to our times (Davies 5). The question remains, then, how Haldane’s futurological predictions, his dystopian words of warning, pan out in regard to these twin concepts, how humanism and modernity change when biologists take their place as ‘deicides.’

How deeply biology would come to influence human social interaction is beyond the scope of Haldane’s claims though, as the twenty-first century has already proven. Biology, and especially genetics, has become the pivotal concept in scientific research, contemporary strands of philosophy, and even commercial commodification. In terms of science, the Human Genome Project (HGP) became the world’s largest international cooperation in biology to date, setting out to sequence the more than three billion base pairs in the human genome, thus allowing the identification and mapping of the complete set of DNA in the human body. The project, which ran from 1990 to 2003, was thus able to provide open-access data on the human genome for research worldwide, which has led to an avalanche of new research opportunities in the diagnosis, treatment, and prevention of diseases (‘Human Genome Project’). Successor projects, such as the HapMap (a survey on genetic variations) and the Cancer Genome Atlas (trying
to map the genetic abnormalities of cancer) have built upon the HGP and its success.

The scientific progress made in biology, as well as in computer technology, has also spurred philosophical debate around the nature of the human and its potential for change and development. The Transhumanist Declaration, crafted in 1998, sets out a vision of a better humanity, ‘broadening human potential by overcoming aging, cognitive shortcomings, involuntary suffering, and our confinement to planet Earth’ (‘The Transhumanist Declaration’). The philosophical and scientific movement that followed from this can be seen at work in organizations such as Humanity+, an educational nonprofit organization promoting transhumanist thought, or the University of Oxford’s Future of Humanity Institute (FHI), researching the ‘big-picture questions about humanity and its prospects,’ including ‘human enhancement ethics’ and the consequences of ‘emerging technologies’ such as bio- or nanotechnology (‘Research Areas’).

The influence of biology on society does not end with academic inquiry, though. Rather, the possibilities opened by the HGP have led to a wide acceptance of genetics as a marker of individuality and social identity. Commercial enterprises have picked up on this and developed commodities based in genetics and biological/health self-monitoring. The health sector, for example, has embraced the idea of the ‘Quantified Self’ (the name of a loose movement) and the potential benefits for their customers, especially when gaining unforeseen amounts of data gathered from self-trackers. 23andme, a consumer service providing individual genome testing, offers another form of self-monitoring. Their service includes genetic testing of your personal genome, mapping out possible health issues or genetic ancestry. Another company, dna11, offers the creation of artworks fully individualized and revolving around the customer by stylizing their DNA into art – genetic identity here becomes self-portraiture.

The impact of genetics is everywhere in twenty-first-century culture, but it is most prominently found in mainstream culture and the popular imaginary of science fiction (sf). In a sense, this book examines the paradigmatic shift from physics to biology in our cultural perception of life-altering and/or life-threatening sciences by this exemplary genre and its visions of a dystopian future. To that end, I strive to determine the changing perception of biological science in examples of visual, literary, and ludic culture from the turn of the twentieth to the twenty-first century in connection to the concepts that inherited their critical potential from modern physical science, humanism, and modernity.

To chart that inheritance and the aforementioned paradigm shift,
manifestations of the sf imaginary seem most suited, as that genre itself is in many scholarly accounts connected to modernity, humanism, and the invention of modern science. Made possible by the Enlightenment, the rational took hold in the literary imagination and replaced the religious and magical sublime with a scientific rationale – Mary Shelley’s *Frankenstein* becoming the precursor to a new and radically different genre (see Aldiss 3; Clute; Freedman). ‘Science fiction is the literature of change,’ it is the literature of ‘ideas worked out in human terms’ (vii), as James Gunn points out. There is an inherent connection of science, modernity, and humanism that focalizes and brings about a change at the beginning of the twentieth century, finding an outlet in sf as ‘a literature of technologically saturated societies,’ as Roger Luckhurst argues:

> Mechanized modernity begins to accelerate the speed of change and visibly transform the rhythms of everyday life. [...] SF texts imagine futures or parallel worlds premised on the perpetual change associated with modernity, often by extending or extrapolating aspects of Mechanism from the contemporary world. In doing so, SF texts capture the fleeting fantasies thrown up in the swirl of modernity. (3)

As such, the sf imaginary is ideally suited to reflect changes in technological advances, for example those that Haldane claimed have the greatest potential for shock and social impact, such as genetic engineering. One mode of literature that is most poignantly capable of expressing this impact and providing warning, as well as the hope to overcome misuse of such technology, is the utopian mode, which is by the end of the twentieth century firmly anchored in sf. As Alcena Madeline Davis Rogan points out, utopia in the tradition derived from Thomas More’s *Utopia* (1516) does not refer specifically to a positive or perfect society, but rather ‘serves as a blank slate upon which [the author] inscribes a world that is intended to estrange the contemporary reader from their conditions of existence’ (309). As two sides of the same coin, both the eutopian (‘good place’) and dystopian (‘bad place’) imaginations function as reminders of possibility for change in society. The connection of sf and the utopian, according to Peter Fitting, develops when society becomes aware of two concepts central to science fiction, those of ‘the future and of the possibility of social change’ (138) and ‘the effects and importance of science and technology’ (139) for such a change. Utopian sf, he argues, has the ability ‘to reflect or express our hopes and fears about the future, and more specifically to link those hopes and fears to science and technology’ (138). Within the spectrum of the
utopian imagination, the positive utopia dominated before the twentieth century, whereas dystopia prevailed during most of the twentieth century (see Claeys, 'Origins'; Moylan, Scraps; Baccolini and Moylan). As Tom Moylan has argued in his books Demand the Impossible and Scraps of the Untainted Sky, neither form was ever fully abandoned, utopianism instead oscillating between both, and both exist in a continuum that allowed for crossovers which he called ‘critical utopia’ (a positive utopia that shows critical reflection and ‘awareness of the limitations of the utopian tradition’; Demand 10) and ‘critical dystopia’ (a negative utopia that ‘make[s] room for another manifestation of the utopian imagination within the dystopias [sic] form’; Scraps 195). The works discussed in this study are such critical dystopias, negative depictions of future societies that critique the utopian project, while retaining a possibility for hope or a different outcome. They are imaginations that produce ‘challenging cognitive maps of the historical situation’ (Moylan, Scraps xi) that shape society’s reaction by providing not a positive blueprint but a warning of what could be, should society not change direction. As science fiction, these critical dystopias thus serve to address current technological changes, their social and political impact, as they are felt in our lives. More so, sf imagines possible extrapolations of how these changes progress and might turn out should the current path be followed further.

Questions of genre and a limitation of corpus are never as clear-cut as scholars would like them to be, so the bounds of my research are somewhat arbitrary in the choice to examine contemporary sf works beginning roughly around 2000, which of course also strategically reflects the year that the Human Genome Project first announced that a draft of the human genome was mapped. Starting from Haldane’s prophetic vision of Daedalus as the biologist bound to present society with shocking discoveries, I determine genetic engineering (epitomized in the public view in the HGP) as the key biological development to realize that vision. I believe that with the beginning of the twenty-first century there has been a shift in sf away from a cyberpunk imaginary, best embodied in Haraway’s cyborg and the visceral technology of mechanical implants, body augmentations, and the virtualities of William Gibson’s ‘consensual hallucination that was the matrix’ (5), and towards another technocultural expression of scientific progress: One that favors genetic engineering, xenotransplantation, and virology and is thus best expressed in the metaphor not of the cyborg but of the splice. It can already be found in what Brian McHale refers to as the “bio-punk” sub variety of cyberpunk SF’ (257), which has since grown into a larger and more varied cultural formation that spans far beyond the confines of the simple sub-variety of literary expression McHale refers to. Similar to Thomas
Foster’s argument that there has been an ‘inflation and dispersal of reference’ (xvi) of the ‘original cyberpunk constellation of ideas, tropes and practices’ (xv) that encourages reinvention, reiteration and renegotiation of cyberpunk, I argue that by the end of the twentieth century, the genetically engineered posthuman has brought forth a cultural formation of biopunk that spans many different forms of culture. I will return to the problematic of both origin and variance of definition of the term in chapter 2, as it includes not only cultural artifacts, but also social and political practices (e.g. biohacking, DIY biology) and a diverse array of philosophical viewpoints. For now it should suffice to say that my remarks are mainly concerned with cultural artifacts that employ biological technology (especially genetic engineering) as central nova to mark a turn towards the posthuman and negotiate possible social and political changes and their consequences.

There are of course many works of sf that have touched upon genetic engineering or other biotechnologies long before McHale introduced the term ‘biopunk’ and thus gave a name to the cultural formation that is the focus of this book. As Helen Parker points out in her 1977 study *Biological Themes in Modern Science Fiction*, the biological as ‘thematic emphasis emerges very early in the development of science fiction’ (5) and can be found in Wellsian proto-sf as early as the late nineteenth century. In her opinion, even though the field is largely ignored in its own right by historically minded scholars, the genre presents three distinct concepts of biology that can be found in sf from the time of its inception: ‘evolution, genetics, and comparative or exobiology’ (11). ‘Genetic science fiction,’ Parker argues,

develops two major premises. One approach [...] centers on the genetic accident, the uncontrolled and unexpected alteration of a species. [...] The other main approach argues the feasibility and desirability of planned genetic alteration, changes controlled either by man or by an alien force. In both types of genetic science fiction, the views finally offered parallel very closely those of evolutionary fiction, sharing especially an emphasis on the importance of adaptation to surrounding conditions. (35)

As such, genetic sf up until the 1970s uses mainly research in heredity (based on the works of Gregor Mendel, Hugo DeVries, and T.H. Morgan; see Parker) to motivate early forms of genetic engineering. Mainly, characters either are exposed to gene-altering radiation (nuclear, Röntgen, or alien), thus accidentally mutating their genome, are part of a large-scale breeding effort via eugenics, or are created through surgical
or chemical alteration (not necessarily a form of genetic manipulation). Early examples of such genetic or genetically inspired sf include the surgical creation of animal–human hybrids in H.G. Wells’s *Island of Doctor Moreau* (1896), the creation of a populous via test-tubes in Aldous Huxley’s *Brave New World* (1932), and the creation of supermen through radiation in John Taine’s *Seeds of Life* (1951) or through an effective breeding program as in Robert A. Heinlein’s novel *Beyond This Horizon* (1942/48). In terms of their utopian potential, dystopia (as in *Brave New World*) and eutopia (as in *Beyond This Horizon*) lie close together and prove that the technology was seen to contain the potential for both positive and negative social change.

Beginning with the discovery of the double helix by James Watson and Francis Crick in 1953, the depiction of genetics in sf shifted slowly but radically. Especially the first successes in recombinant DNA by researchers at Stanford University in 1971 (see Martinelli 336) fostered our contemporary understanding of genetic engineering and its possibilities. Instead of heredity and eugenics, this research made possible the direct insertion of DNA sequences into other organisms. It led to genetic engineering being seen not as a ‘fearful, undefined prospect,’ but rather as ‘a multibillion-dollar industry’ (Slonczewski and Levy 180). Since then, the ‘accumulating advances of the last half-century have found expression in sf,’ as Joan Slonczewski and Michael Levy argue, in depictions of cloning, genetically enhanced societies, and organ harvesting (180–81). Their examples include novels about human cloning such as Kate Wilhelm’s *Where Late the Sweet Birds Sang* (1976) and C.J. Cherryh’s *Cyteen* (1988), novels about genetically altered societies like Brian Stableford’s *Inherit the Earth* (1998), and organ farming in Michael Marshall Smith’s *Spares* (1997). In these books, eutopian moments exist within the more dystopian settings, thus providing divergent readings of the possibilities of change and the anxieties evoked by biotechnology.

As I have shown, biological and even genetic sf has existed since at least the late nineteenth century, but it is my belief that with the turn of the twenty-first century, the genetic has become not just a theme in sf, but rather a cultural formation that transcends the borders of the literary genre and establishes itself in mainstream culture. Sarah Herbe argues that while ‘genetic engineering became a popular topic in science fiction in general from the 1960s onwards, it was not accepted immediately into the repertoire of hard science fiction writers […] It was only with [hard sf’s] new upsurge beginning in the 1990s that genetic engineering was firmly established as “appropriate material”’ (10). I would reject the notion that genetics gained popularity in
1960s sf, rather arguing for a shift in the depiction of genetics in sf a
decade later, in the 1970s, triggered by research in recombinant DNA. But still, this development took place only within a very small and specific subset of literature (sf, more specifically hard sf) and had not found recognition in mainstream culture. In terms of the popularity of genetic engineering as a topic and its transformation into a broader category – coinciding or cross-pollinating with the resurgence of hard sf following in the wake of cyberpunk – I follow Herbe in assuming the (late) 1990s as the origin point of a new development in genetic sf. This is the origin point of biopunk (genetically engineered posthuman sf) as a cultural formation.

One reason why genetic engineering took till the 1990s to become recognized might be that biological research rather played a backseat role in the scientific progress of the twentieth century – at least in terms of a general public recognition. A quick survey of *Time* articles, especially cover stories, which I submit as a cursory suggestion of mainstream media news coverage (not as empirical evidence), reveals this discrepancy quite impressively: Watson and Crick’s discovery in April 1953 is completely ignored by the magazine, receiving not even a news item. Biogenetic progress first features prominently in the issue titled ‘The New Genetics: Man into Superman’ (April 19, 1971), prompted by the aforementioned research in recombinant DNA at Stanford University. In this special issue, promises and problems of the new science are presented to the unknowing public. The articles in that special section seem eutopian in their praise for genetics in terms of its power to cure hereditary diseases such as cystic fibrosis, diabetes, Down syndrome, and even cancer as well as its possibility for some rather far-fetched choices of genetic manipulation (such as creating a human with a two-compartment stomach to digest raw plant matter or with regenerative powers in case of organ failure). Interestingly, the main article of the special section closes with the statement that genetic engineering ‘could well herald the birth of a new, more efficient, and perhaps even superior species’ – suggesting a development towards the posthuman while raising the question: ‘But would it be man?’ (‘The Body’).

Afterwards – aside from an issue on the successful creation of test-tube babies (July 31, 1978) – no other genetic invention features on the cover of *Time* until 1989, when the Human Genome Project announced its ‘monumental effort that could rival in scope both the Manhattan Project […] and the Apollo moon-landing program. […] The goal: to map the human genome and spell out for the world the entire message hidden in its chemical code’ (Jaroff). Between 1990 and 2003, every couple of years biogenetic research becomes an issue worthy of
large-scale coverage: ‘Genetics: The Future Is Now’ (January 17, 1994), ‘Will There Ever Be Another You?’ (March 10, 1997), ‘The Future of Medicine’ (January 11, 1999), ‘Cracking the Code!’ (July 3, 2000), ‘Human Cloning Is Closer Than You Think’ (February 19, 2001), and ‘Solving the Mysteries of DNA’ (February 17, 2003). In the 14 years of the HGP, seven *Time* covers were dedicated to genetics, whereas the 35 years before, since Watson and Crick’s breakthrough, only provided two covers, one of which was devoted to reproductive medicine rather than clear-cut genetic engineering. It seems obvious, then, that beginning in 1989, public interest in genetic engineering began to grow, peaking somewhere around the turn of the century, when the HGP finalized its work and published its results in *Nature* (February 15, 2001) – fueled over the century by bio-ethical controversies such as the cloning of the sheep Dolly as well as the gene patenting and for-profit work of Craig Venter and his company Celera (see Kluger; Roberts).

It seems only natural, given the mainstream interest in genetic engineering, that the creative imagination of writers and artists would be attuned to this development and respond in kind – with early examples of genetically engineered sf in the 1980s and a growing number of artifacts negotiating this technology as the HGP went along. I will discuss this development and the cultural formation it created in the next chapter. But as cultural artifacts, dystopian and science fiction literature, film, television, and video games (as well as other media) are only outwardly concerned with the future; their main concern rather is with the present and with developments within contemporary society and how they influence human lives. As such, they are fictional examples of the utopian imagination, whose job is at heart akin to that of the ‘sociological imagination,’ as Zygmunt Bauman describes it: ‘a translation of the individually faced and privately tackled problems into public, collectively confronted issues and of public interests into the individually pursued life strategies’ (‘Chasing’ 123). Sf especially tackles the social issues that concern themselves with or are derivative from technological progress and a shifting cultural understanding of science.

At the end of the twentieth and the beginning of the twenty-first century, these issues include what Bauman has conceptually referred to as a shift from solid to ‘liquid modernity’ and which needs to be understood among other things as the evanescence of all forms of social stabilizing institutions, such as nation, religion, class, or family relations – the concept will be described in detail in the next chapter. Bauman has been criticized for his rather dark sociological vision and sometimes even been declared a pessimist (see D. Davis, ‘Preface’; M. Davis) because of his strong criticism of the current globalized capitalist system and the
austerity of his vision. Proponents of his sociology try to reclaim his utopian impulse by pointing to the ‘transformation’ or a moral ‘compass’ orienting his thought (M. Davis). Hoping Bauman would provide a utopian blueprint for future action seems to be beside the point though, as Michael Hviid Jacobsen argues:

Zygmunt Bauman’s work is notorious for offering no nostrum, no wonder-cure and no social elixir against the problems confronting contemporary society. His apparent critical pessimism must rather be seen as a wake-up call to the world. He offers no neutral perspective on the world but a critical, counter-cultural, value-oriented and normative utopian vantage point. (‘Bauman on Utopia’ 227)

The tension apparent in these comments and critiques, I believe, originates in the unacknowledged discrepancies of the definition of ‘utopia’ in terms of common usage, sociology, and literary studies. Common usage, more often than not, sees ‘utopia’ as the unreachable perfect life, the dream of a better world, the ‘castles in the air’ that Lewis Mumford so emphatically urged us to build from hope: ‘When that which is perfect has come, that which is imperfect will pass away’ (307–08). In terms of sociological thought, ‘utopia’ refers to the process of betterment, the analysis of what is and the theoretical approach for what might be: ‘Utopia is thus a way to approach the all too human being-in-the-world. It is a journey to that which is not-yet, a commitment to the possible even when only the probable or even impossible might seem overwhelming’ (Jacobsen and Tester 1). In this line of thought, utopianism remains hopeful of providing a blueprint for a better future – hence the disappointment at Bauman’s refusal to provide any. Literary theory, on the other hand, sees ‘utopia’ as a neutral term that incorporates any form of ‘social dreaming’ (Sargent 1) and thus also allows for dystopia, the negative side of the dream, the nightmare to be warned about, as equally utopian. Using the concept of dystopia – more specifically, what literary critics have termed the ‘critical dystopia’ (Sargent 9; Baccolini and Moynan 3; Moynan, Scraps xv) – as an additional screen onto which to project Bauman’s musings on liquid modernity reveals his critique as undermining our clear-cut conceptions of (e)utopia/dystopia and finding a way, as Jenny Wolmark once remarked about Margaret Atwood’s work, to ‘critically voice the fears and anxieties of a range of new and fragmented social [...] constituencies and identities in post-industrial societies’ (cited in Baccolini and Moynan 4).
One way for the new and fragmented identities to emerge lies in Haldane’s Daedalus and the potential of genetic engineering, which by the beginning of the twenty-first century has manifested itself culturally as a category actively engaging, challenging, negotiating, and even transforming contemporary conceptions of the human. The results are cultural and critical expressions of a posthuman condition, a development that motions towards a point not just ‘after-the-human’ but also beyond humanist thinking. The social, political, and technological changes inherent in liquid modernity, late capitalism, and globalization also find an outlet in the discourses on the posthuman. Generalizing the many variants, two main strands of posthuman discourse emerge.

On the one hand, the continued technoscientific progress makes possible ‘the enhancement of human intellectual, physical, and emotional capabilities’ and the general improvement of human living (both in quality and in duration) that leads to an intellectual movement of ‘transhumanism’ (Joel Garreau, cited in Wolfe, *What Is Posthumanism?* xiii). Transhumanism, as promoted by such prominent figures as robotics scientist Hans Moravec or FHI philosopher Nick Bostrom, challenges the idea of the human by engineering solutions to enhance its capabilities and to push its limitations. Based in rational humanism, transhumanism, of course, further focuses the humanist privileged subject position in that it hinges on individual advancement through technological means and centers on the selfish utopia of extending the humanist subject into new technologically embodied realities. Here, then, I see reflected the sociological notion of a utopian blueprint (literally, the technical blueprint of robotic existence beyond human bodily suffering) that allows for a better life once the transhuman state has been reached.

On the other hand, critical posthumanism, as promoted by scholars such as Rosi Braidotti, Cary Wolfe, or Neil Badmington, better reflects the utopian critical perspective as mentioned by Wolmark, in that it similarly addresses subjectivity as hybrid, multiple, and continuously changing. Instead of hierarchizing existence and granting the human a power over and use of technology, nature, and others in a utopian fantasy of hegemony, critical posthumanism understands ‘the prosthetic coevolution of the human animal with the technicity of tools and external archival mechanisms’ (Wolfe, *What Is Posthumanism?* xv) as well as with non-human others. The ‘posthuman challenge’ (Braidotti 37) thus presented is an expression of the end of man as the center of humanist thinking (Hassan 213; Foucault, *Order* 386–87), which at the same time ‘means that the structural others of the modern humanistic subject re-emerge with a vengeance’ (Braidotti 37): The new posthuman condition needs to find ways in which to address the alternatives
to radical othering and to counter the sexualized, racialized, and naturalized positions apart from the humanist subject (white, wealthy, healthy, educated, heterosexual, human). Further exploration of this subject and the distinct variance in posthumanist conceptions will also be undertaken in the next chapter.

Liquid modernity, posthumanism, and genetic engineering are the power sources from which the ‘shocks’ that Haldane so aptly conjured up 90 years ago emanate: These shocks are the work of Daedalus and would have ‘immediate and disruptive effects upon society’ (38). The above concepts represent the shifting focal points of both science and society and will in the following be my guiding terminology for an analysis of examples of twenty-first-century dystopian science fiction.

Returning to my original premise, I believe that the rise of biology as the driving force of scientific progress, the mainstream attention given to genetic engineering in the wake of the Human Genome Project, the changing sociological view of liquid modernity, and the shifting discourses on the posthuman form a historical nexus that produces the cultural formation of biopunk. My analysis deals with dystopian science fiction artifacts of different media from the year 2000 onwards that project a posthuman intervention into contemporary socio-political discourse based in liquid modernity in the cultural formation of biopunk. Biopunk makes use of current posthumanist conceptions in order to criticize liquid modern realities as already dystopian, warning that a future will only get worse, and that society needs to reverse its path, or else destroy all life on this planet. As Rosi Braidotti argues, ‘there is a posthuman agreement that contemporary science and biotechnologies affect the very fibre and structure of the living and have altered dramatically our understanding of what counts as the basic frame of reference for the human today’ (40). This book analyzes this alteration as directors, creators, authors, and artists from the field of science fiction see it.

In chapter 2, I provide an inventory of the different theoretical strains pertinent to my discussion and will elaborate the concepts introduced in this chapter. Starting from the premise of science fiction as a literary (and more broadly speaking cultural) mode that is ideally suited to negotiate technoscience and its influence on social and political structures, I will introduce and define the cultural formation of biopunk out of its historical precursor cyberpunk. Further, I will shortly discuss the ongoing change of the formation from literary mode to socio-political and scientific movement and discuss the limitations of the terminology. Then, in order to situate biopunk as a contemporary creative intervention into posthuman discourses, I will define and elaborate the historic origin and contemporary use of the posthuman, anchoring it in discussions
of humanism, anti-humanism, and finally posthumanism, specifically differentiating between transhumanism and critical posthumanism as the two current theoretical positions that form the debate. In the third section of chapter 2, I will then establish the sociological frame of my thesis, positing that contemporary society needs to be understood as formed by what Zygmunt Bauman calls liquid modernity. The chapter elaborates the dissolution of social institutions and the shifting of focus from public debate onto private life choices, the global dimension of current political issues, and, in contrast, the individualization of solutions to those issues. In describing liquid modernity as fraught with global issues of precariousness, I argue, Bauman presents sociological thought akin in its function to the cultural artifacts in the mode of dystopia. Liquid modernity, as critical dystopian present, consequently demands to be understood as warning about current tendencies in society, as criticism, and even more importantly, as an education of society in regard to its own needs and desires. In reviewing the utopian imagination, its history, terminology, and function, I thus conclude the theoretical frame in which to read contemporary biopunk culture.

Chapter 3 analyzes two exemplary literary works dealing with the creation of new posthuman species as a consequence of contemporary consumer society. With liquid modernity commodifying all aspects of life, as described by Bauman, the logical extrapolation, made possible by genetic science rapidly catching up to science-fictional possibility, is the commodification of all life itself, including the human. Margaret Atwood, in her recently completed ‘MaddAddam’ trilogy, and Paolo Bacigalupi, in his ‘Windup’ stories, both discuss future worlds that build upon current tendencies of an extreme consumer society and the sea change of human impact on zoe, bare life, in the Anthropocene. Both story cycles enhance present dystopian tendencies of liquid modernity to explore the consequences of the hypercapitalist commodification of life and the effect this development would have on the issue of human subjectivity. In both story worlds, zoe is reduced to its mechanical, material quality and appropriated for consumption, manifest expressly in the changing status of the human into the inhuman, non-human, and posthuman. In chapter 3, I discuss this shift in the perception of the human and the consequences of posthuman social development. Most importantly though, in exploring the posthuman as an alternative form of communal and social practice, both literary works provide for a eutopian moment in the dystopian imagination – allowing a hybrid, changing, and multiple posthuman perspective to emerge.

Chapter 4 similarly reflects on the creation of the posthuman, this time concentrating on the genetic manufacture of life in Vincenzo
Natali's film *Splice* (2009). In shifting the medium of the discussion, the more private perspectives of posthuman creation and especially the creature itself are foregrounded by foregoing the larger, social discussion of the consequences provided in chapter 3. Instead, I analyze liquid modern realities and the loss of stability in its personal dimension, such as love, sex, and procreation. The film, as a biopunk adaptation of the classic Frankenstein story, makes elaborate use of the metaphor of the monstrous to characterize contemporary society and its desire to liquefy personal bonds and relations. The posthuman becomes monstrous allegory for the liquid modern wish to forego social commitment, especially and most frighteningly reflected in concepts of love and motherhood, where the film warns about the interpersonal consequences of relegating procreation to science and extracting it from stable, secure social relations.

Whereas the reflector of the other is used to shed light on the social and private consequences of posthumanism in terms of community, motherhood, and partnership in chapters 3 and 4, chapter 5 deals with the personal consequences of a posthuman subjectivity and the task of identity creation. In terms of liquid modernity, Bauman argues that risks and threats are becoming ever more global but remain systemic, while at the same time the solutions to these issues are relegated to the individual. The existence of such a noticeable gap between society's insistence on individuality, autonomy, and self-assertion on the one hand, and the systemic risks to this individuality, caused by a globalized flow of information, technology, and politics, on the other, is thus the argument of my analysis of the video game *BioShock* in chapter 5. Science fiction as a genre here allows for the extrapolation and exaggeration of this gap by employing the posthuman as an extreme possibility of human identity creation. The dystopian imagination provides a bleak emphasis of the science-fictional dimension of consequence in terms of this development, by providing an alternative history in which rampant individualism meets an extreme form of consumer society. The human body has become the battleground of liquid modern desires to form and consume identities, which is enacted in a fluid posthumanity. Further, the medium of the video game uniquely provides the specific ideological commentary on the systemic nature of the illusion of autonomy, especially in liquid modern consumer society. As such, *BioShock* is an enlightening meta-commentary on the contradictory nature of systemic risk, *de jure* individualization, and the search for utopian spaces.

But whereas *BioShock* perceives utopian moments merely in accepting the systemic conditions as a given and hunting for the individual solution and the personal gain, the TV series *Heroes*, discussed in chapter 6, is
more optimistic in its depiction of the social consequences of posthuman evolution and argues for the possibility of change. The show’s premise of posthumanity as a result of evolutionary mutation reflects these radical changes in subjectivity not onto an elite few, as in classic superhero narratives, but onto everyday people. The series consequently emphasizes the potential of the posthuman condition as a catalyst for global social and political change – a solution to the ‘big issues’ that elude the current institutions of power. The posthuman becomes the site of struggle over the potential changes to the future, in effect, over the concept of utopia. In contrasting dystopian futures with the present possibility of change through posthumanity, the show allows a utopian space to emerge, in which global issues such as the war on terror can be solved and attacks such as those on 9/11 could be prevented. In this, *Heroes* returns to humanist notions and concepts of history as events shaped by exceptional individuals, while at the same time complicating them with communal images of a cooperative and interconnected posthuman subjectivity.

In chapter 7, then, I return to the changed social and political realities of the new millennium and the post-9/11 world, connecting global terror with the recent success of zombie films in mainstream culture. The renaissance of the zombie film can be directly linked to its allegorical depiction of viral, off-scene terror and the dystopian future of a post-apocalyptic world. In analyzing post-9/11 zombie films, especially the *Resident Evil* film series and the *28 Days* franchise, the chapter discusses liquid modern anxieties as connected with terrorism and globalization. The films reimagine the zombie in terms of biological disaster – as viral, infectious, and unseen – in order to acknowledge the new form of terror emergent in 9/11. In appropriating this biopunk context, contemporary zombie films make available a cultural negotiation of the liquid modern logic of necropolitics (as an extension of biopolitics) and the negation of human and non-human others through technoscientific means. By casting humanity as *hominès sacri*, biopunk zombie films allow for a witnessing of a radical change of the social order. Zombies, in these films, present a possible future that imagines posthuman subjectivity in drastic and extremely jarring imagery.

As stated above, all of these cultural artifacts thus provide contemporary society with exactly those imaginations which I term biopunk dystopias. But before I turn to the exemplary analysis of these artifacts, I will discuss the theoretical framework of this book.