

# **Science Fiction as the Mythology of the Future**

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### **Introduction**

Science fiction is clearly the most visible and influential contemporary form of futurist thinking in the modern world. Why is science fiction so popular? As I will argue, one main reason for the popularity of science fiction is that it resonates with all the fundamental dimensions of the human mind and human experience. It speaks to the total person about the future.

In this article I describe the historical development of science fiction as an approach to the future.<sup>1</sup> Within this historical review, I consider the rich array of futurist themes and issues examined in science fiction. I also describe the diverse functions and innumerable strengths of science fiction as a mode of future consciousness.

My central arguments are:

- Science fiction engages all the fundamental capacities of the human mind; it generates holistic future consciousness.
- Science fiction weaves together theory and abstraction with personalized narrative. It combines a highly detailed and concrete level of realism with theoretical speculation on the future.
- Science fiction addresses all the main dimensions of the future and synthesizes all these dimensions into integrative visions of the future.
- Because it reflects contemporary and futurist thinking, and embodies many features of myth, science fiction can be viewed as the mythology of the future.

### **Myth and Science Fiction**

As a starting point, I will consider the power of religion, and in particular religious myth, as an approach to the future. Religious myth, though not exclusively focused on the future, has had a great impact on people's beliefs and attitudes toward the future. It is the earliest recorded form and probably most influential type of futurist thinking.<sup>2</sup> After describing some of the main features of religious myth, I will demonstrate how science fiction embodies many of the same qualities and strengths as religious myth.

There are many explanations of the power of religious and mythic thinking. Religion answers the deepest metaphysical questions. It provides personal meaning connecting the individual and social group with God's purpose and with the great narrative of history. Religious doctrines are usually connected with various myths which reinforce its belief systems and principles. Religious myths explain existence in the form of stories, connecting past, present, and future in a way that is easily understood and highly inspirational. Often associated with religious myths are ethical principles, providing ideals and direction for people in their lives. Religious myths speak to the heart as well as the mind.

There is an archetypal dimension of myth. An “**archetype**” is a fundamental idea or theme often represented through some image, persona, or symbol. Contained in various religious myths are such basic themes as death and the renewal of life, honor and courage, love and devotion, temptation and damnation, good versus evil, and creation. These central themes of human existence are often represented by mythological characters that provoke strong emotions in the believer and a sense of personal identification.

Science fiction shares certain important commonalities and strengths with myth. Just as with ancient myths, a key strength of science fiction is its narrative form. It has become so popular because it appeals to the dramatic dimension within people. Life seems more like a story than a set of abstractions, and just as history is a multi-faceted story, the future will be a complex saga of stories.

Science fiction, like myth, contains personified characters, thus creating a personal connection with the reader. The reader often identifies with the characters – sometimes positively, sometimes negatively - and vicariously experiences the drama and events of the story through the characters.

As with myth, the stories of science fiction express fundamental themes and archetypes of human existence. In both science fiction and mythology fantastic beings and settings are presented as a way to symbolically highlight important features of humanity or reality.

Although science fiction may inform it also produces an emotional experience in the reader. The future is felt as well as imagined and considered. This emotional dimension often translates into inspiration. As the science fiction writer Thomas Disch argues, science fiction has become integral to our lifestyle and culture; through its characters, icons, stories, and themes, it inspires the reader and provides the raw material for turning the future into a personalized journey and way of life.<sup>3</sup>

Although the experience of science fiction is personalized, science fiction stories are often set within a cosmic context and have the same breadth and scope that mythic tales do; they also address the same expansive themes of the nature of reality and the meaning of human existence. In fact, as in myth, science fiction connects the personal with the cosmic. What is the impact and significance of the unfolding cosmic events on the characters in the story?

But science fiction goes beyond traditional myths. From a modernist perspective the myths of old are based on archaic thinking. They are oblivious to modern science and the issues of modern life. If myths do have a unique power to motivate and inform people, then perhaps what are needed are new myths based on contemporary thinking that address contemporary issues, as well as issues of the future.<sup>4</sup> As I will argue, this is exactly what science fiction provides. It provides mythic tales informed by science and contemporary thought.

## **Science and Science Fiction**

I will now look at the relationship between science and science fiction. I will describe how science first impacted popular story telling in the modern era, and how this introduction of science into popular narrative led to science fiction.

John Clute, in his *Science Fiction: The Illustrated Encyclopedia*, begins his history of science fiction by trying to define the distinguishing nature of science fiction. He notes that people from ancient times were writing fantasies of traveling to the heavens, or of encountering strange and fantastic beings in strange or fantastic places. Yet, according to Clute, the authors of these early stories did not try to present a convincing case that their imaginative scenarios could actually exist in reality. Clute defines “fantasy” as “make-believe”, and argues that pre-modern fantasies were intended to be “make-believe” for they provided no explanation of how the imagined fantasy could possibly be real. According to him, the attempt to be realistic in such fantastic stories doesn’t occur until the Scientific Revolution and the modern era. For Clute, More’s *Utopia* (1516), written prior to the modern era, was not intended to be a plausible or real situation. On the other hand, Francis Bacon’s *The New Atlantis* (1626) was intended to be a realistic possibility. Bacon attempted to explain how the type of futurist society he envisioned could be created through science and reason. Bacon offered a rich array of predictions of new and fantastic inventions and human realities for the future that presumably could be achieved through the application of science and reason. For Clute, Bacon’s *The New Atlantis* is **Proto-Science Fiction**.<sup>5</sup>

Another early candidate for Proto-Science Fiction is Johannes Kepler’s *Somium seu Astronomia Lunari* (1634). According to Wyn Wachhorst, in the *Somium*, Kepler presented the first cosmic voyage in science fiction, involving a journey to the moon. In this story Kepler was also the first person to seriously consider the possibility of extraterrestrial life.<sup>6</sup> For Kepler, space travel was not a fantasy; he believed in the future we would journey into outer space. In Kepler’s own words, “Let us create vessels and sails adjusted to the heavenly ether and there will be plenty of people unafraid of the empty wastes. In the meantime, we shall prepare for the brave sky-travelers maps of the celestial bodies.”

Science and the concept of secular progress, associated with the emergence of the philosophy of the Enlightenment in seventeenth and eighteenth century Europe, provided a rationale and guide for conceiving of possible futures far different from the present. For Clute, the beginnings of science fiction coincide with the emergence of the idea of secular progress and the belief in realistic possible changes in the future due to science and reason.

Yet I would argue, contrary to Clute, that people in ancient times did believe in the existence of mythological places and beings. They believed that gods and goddesses existed in a higher supernatural realm, though often they visited, haunted, or “enchanted” the natural world.<sup>7</sup>

What changed in the modern era were standards of knowledge and truth. The metaphysical or religious explanations of fantastic beings and alternate realities were not scientific or rational by our modern standards, and consequently, have labeled as “superstitious”, and relegated to the realm of pure fantasy. According to its advocates, modern science and the secular philosophy of the Enlightenment encouraged freedom of thought and inquiry after centuries of religious repression. Answers to the questions of life were no longer grounded in unsubstantiated authority and sacred texts. Science strove for objectivity and

impartiality. Science bases its beliefs on empirical observation, experimentation, and reason, and the description of reality that has emerged over the last few centuries within science clearly contradicted in many ways the description and explanation of reality offered in ancient myths and religions.

The emergence of science fiction as a form of narration about the future involves a transformation in our standards of thinking, brought on by the Scientific Revolution, regarding what is plausible and real. This new way of viewing reality provided a different approach to understanding and predicting the future – an approach based on the ideas of reason and science. When the age old tradition of story telling of strange and wondrous realities embraced the ideas and principles of science and secular progress as a way to explain its imaginative settings and characters, science fiction was born.

Hence, as can be seen, science fiction reflects many of the qualities and strengths of ancient myth as well as the beliefs and standards of modern science. It creates “scientifically credible” myths. I propose, in fact, that science fiction is becoming the **mythology of the future**. As ancient mythologies provided meaning and direction for humankind, I would suggest that science fiction will provide the stories that will give humanity meaning and direction in the future. Science fiction is usually about the future and serves the function of influencing our journey into the future.

### **The Genesis of Science Fiction**

Science fiction also has roots in the Romantic philosophy of the nineteenth century. Nineteenth century literature was strongly influenced by Romantic philosophy with its emphasis on human emotion and passion and the inner turmoil, madness, and distress of the human mind. In the nineteenth century, gothic, horror, and adventure stories, all expressions of the Romantic mindset, were very popular. One central goal of such stories was to stimulate and provoke strong emotional reactions in the reader, both positive and negative. Whereas the emphasis in scientific writing has been to describe reality in an objective, rational, orderly, and non-emotional manner, Romantic writing often highlighted the opposite qualities: subjectivity, mental turmoil, and emotionality.

Science fiction would combine together the Romantic - emotional dimension of human experience with concepts and speculations derived from science and Enlightenment philosophy. Nineteenth century science fiction (before the genre had acquired its modern name) was popularly referred to as “scientific romances”. One early nineteenth century writer who wove together Romantic and scientific elements in his stories was Edgar Allen Poe (1809 – 1849). Poe is well known as a writer of horror stories and tales of the supernatural, but he also includes various scientific ideas and speculations to create psychologically disturbing and mesmerizing effects in his dark tales.<sup>8</sup>

The Romantic dimension of science fiction includes not only the terrifying and horrific but the sublime and inspiring as well. As one early example, Jules Verne (1828 – 1905), highlighted the exhilarating and hypnotic power of new machines and scientific devices, the exotic and esoteric realities and worlds

uncovered or created through science and technology, the dramatic awe-inspiring adventure into the unknown, the passion and excitement of exploration, and the existential and cosmic challenges of the future to the human soul.

Another key connection between science fiction and Romanticism pertains to the Romantic philosophical distrust, if not rejection, of the positive and progressive promises of science, technology, and modernity. Though Clute argues that futurist science fiction emerged when the hopes and predictions of secular progress were incorporated into popular story telling, stories within science fiction often have taken the opposite position. Science, secular progress, and the growth of technology may lead to our ruin. The classic case of this negative view of modern science and technology is *Frankenstein* by Mary Shelley (1797 – 1851). Although during the nineteenth century there was great optimism about the future, perhaps the earliest example of a science fiction novel, Mary Shelley's *Frankenstein, or the Modern Prometheus* (1818), foretold of the potential dangers of science and technology.

*Frankenstein* though is fundamentally an introspective nightmare, as much a critique on human nature, as on science and technology.<sup>9</sup> One could say that it was the egomania of Victor Frankenstein, coupled with his heartless abandonment of the creature, that is the real cause of the misery, tragedy, and suffering described in the novel. Shelley, in fact, does not discuss in any detail the technology of creating life or the potential problems of accelerating technology. Rather, she focuses on Frankenstein the man, and the haunting thoughts and feelings that literally destroy him as the novel progresses.

Still, in spite of the introspective quality of the story, due to its popularization in the movies in coming years, the story of Frankenstein has been strongly associated with the potential dangers of technology, especially if it is used to serve the human aspiration to play God. Whether it is technology, as such, or the human desire to gain power over reality through technology, Romantic philosophy saw problems and potential tragedy in putting too much faith and hope in science and technology.

The science fiction writer Brian Aldiss identifies *Frankenstein* as “the modern theme” for it not only addresses the dual nature of humanity, of being but an animal (an ape) yet God-like in power to understand and create; it also addresses the double-edged sword of humankind’s superior powers. According to Aldiss, the power to create brings both “success and misery”. Progress, technological and scientific, is a double-edged sword, and *Frankenstein* focuses upon the potential negative consequences of humanity’s increasing power over nature and the world. Aldiss, in fact, sees *Frankenstein* as a “new myth” – a modern myth for our times. Through science and technology humanity is becoming God-like with the power to create, yet do we have the maturity and foresight to use this power wisely? With science having replaced God, humankind is empowered to remake the world. But Victor Frankenstein is a poor God, a fearful God, for he recoils from his own creation, and dies a lonely death haunted by the reality of what he has brought upon the world.<sup>10</sup> Thus, the first new myth created in science fiction is tragic and apprehensive over the future.

Yet throughout the nineteenth century there were also many positive stories about the promises of technology, secular progress, and the wondrous world of tomorrow.<sup>11</sup> Utopian projections of ideal future human societies proliferated in the Age of Enlightenment and continued into the nineteenth century, including such famous books as Samuel Butler's *Erewhon* (1872) and Edward Bellamy's *Looking Backward* (1888).<sup>12</sup> During the years from 1888 to 1900, according to Laura Lee, 150 novels were written that were hypothetically set in the year 2000.<sup>13</sup>

Hence, from its beginnings, science fiction includes stories that are positive and uplifting, as well as dark and frightening. Science fiction inherits from the nineteenth century a fundamental ambivalence regarding the promises of science and technology and the future in general. Change is both exciting and frightening. Science fiction begins with this insight – that tomorrow holds possibilities of both great progress and good, as well as great disaster and evil. Science fiction, from its inception, combines both the optimism of science and reason associated with the Enlightenment and the apprehensions of hi-tech modernity and fear of change associated with Romanticism. The unknown and the mysterious can provoke both awe, hope, and wonder, or anxiety, fear, and terror.

The double-edged sword of science fiction can definitely be seen in the two writers who really popularized the genre at the end of the nineteenth century. Science fiction first made a big impact on popular culture in the works of Jules Verne (1828-1905) and H. G. Wells (1866-1946).

Jules Verne is well known for his scientific and technological predictions and his great sense of adventure into the unknown.<sup>14</sup> The future worlds of Jules Verne told of times of discovery and human advancement, with a strong emphasis on the positive powers of science and technology. Verne was an avid reader of contemporary science and technology and offered various predictions about future science and technology throughout his stories. Generally, Verne's novels reinforced the idealism of secular progress via the advances of science and technology and the triumph of the human spirit. Things often went wrong in his story lines (providing the necessary drama), but the courage, intelligence, and ingenuity of his characters, coupled with advanced technology and science, usually overcame whatever obstacles were encountered.<sup>15</sup>

Yet, there is a lesser known "dark side" to Verne's writings. He was not an unequivocal optimist about the future, but his more pessimistic writings did not so easily get to print since they conflicted with the progressive temper of the times.<sup>16</sup> Especially toward the later years of his life, he began to seriously doubt whether secular and technological progress would lead to a better world, and whether humanity had the capacity or inclination to create a better society.

The future clearly becomes complex and multi-faceted and both hopeful and unsettling in the work of H. G. Wells. For Wells, the future becomes a topic of intense and sustained speculation and study. As he remarked "I am extravagantly obsessed by the thing that might be, and impatient with the present."<sup>17</sup> Wells wrote an immense number of both narrative fiction and non-fictional essays and books on the future.<sup>18</sup>

Herbert George Wells is generally considered the father of modern science fiction. The science fiction writer Thomas Disch identifies Wells as the greatest of all science fiction writers.<sup>19</sup> Wells created in story form a multifarious and expansive set of images of possible futures. We encounter alien minds and civilizations, “future histories” of the world and humanity extending millions of years outward, biologically engineered life forms and humans, invisible humans, great future war machines and aircraft, atomic weapons, and both the fall and rise of human civilizations.<sup>20</sup>

Less well known to popular audiences, are Wells’ extensive series of philosophical and sociological books and essays on the future. Wells was not only interested in speculating about the possibilities of the future; he was also very concerned with actually influencing the future of mankind. He wrote about his concerns regarding the human condition and presented numerous proposals for how to improve human society. Wells believed that the future could be both predicted as well as directed toward desirable ends, and consequently he is often seen as the father of modern future studies as well as science fiction.<sup>21</sup>

Wells clearly made numerous specific predictions about the future; sometimes his predictions were mistaken, but often he accurately anticipated the “shape of things to come”. He predicted the atomic bomb and the use of nuclear energy, armored tanks, aerial warfare, worldwide television broadcasting, and cinematic pornography. He foresaw intercontinental ballistic missiles and the rise of a global society run by multinational corporations. He envisioned large mechanized agricultural farms, genetic engineering, and highly overpopulated mega-cities. He foresaw both World Wars long before either began. Wells envisioned the emergence of a World Brain and World Encyclopedia that in some ways anticipates the recent development of the Internet.<sup>22</sup>

Central to Wells’ thinking on the future was his evolutionary and panoramic view of history and time. Wells saw all of nature as transformational, rather than static and unchanging. History involves change. Further he saw time as directional, rather than cyclic, filled with creativity and novelty. Wells took a global, if not a cosmic, view of history, looking for general trends across the vast expanse of time from the dawn of creation to the far distant future. Wells was intensely interested in both history and the future and connected the two together; as the Wells biographer Warren Wagar states, Wells “traversed time”.

Wells’ comprehensive vision of the past and the future was conceptualized in evolutionary terms. Time is evolution. In particular, evolution provided for Wells a scientific story and explanation of the ongoing saga of humankind. From early in his career, Wells wrote articles and eventually books, both fiction and non-fiction, concerning the evolution of humanity, both pertaining to the past and to the potential future of our species. According to Disch, in his science fiction, Wells provided a new evolutionary mythology and narrative of human history and the future.<sup>23</sup> Evolution as a creation of modern science provided Wells with a general scheme for telling the story of humanity. Wells frequently captures the transformational tension and struggles of humanity in his fictional stories. On the one hand we are grounded in our animal ancestry - on the other hand we aspire

to the heavens and the stars above. We are a creature in evolutionary transition, moving forward yet grounded in the past.<sup>24</sup>

Because Wells saw the future in evolutionary terms he saw the possibility for unending human progress but also the potential for disaster, if not total extinction.<sup>25</sup> The future of humanity was uncertain for within an evolutionary framework there is no purpose or *telos* to nature, and humanity is not some special creation by God, but just one among many species in the ongoing struggle for survival. There is no guarantee that humanity will adapt and flourish into the future. Hence Wells created both utopian visions of the future, where humankind uses reason, science, and humanitarian ethics to guide its future, and nightmarish, troubling, and dystopian visions where negative and self-destructive trends dominate in our future history. Given the uncertainty of the evolutionary saga, the future of humanity is a double-edged sword – of both hope and fear.

In Wells' evolutionary perspective we see an important new archetypal theme that would influence much of future science fiction. The world is no longer a creation of gods; it is an evolutionary process involving the possibilities of both unending advancement and total extinction. Just as the double-edged sword of science and technology provided a new motif for myth-making, the naturalistic, cosmic, and scientifically informed theme of evolution provided another new framework in which to create stories about the future.

The earliest and most famous of Wells' science fiction novels running from *The Time Machine* through *When the Sleeper Awakes* and *The First Men on the Moon* tend to be dystopian, frightening, and horrific. Many of these novels can be interpreted as warnings; if we don't change our society and our present ways of thinking and behaving we are in for trouble. *The Time Machine* envisions a future world in which humanity – presumably the capitalists and workers of present day – have evolved and divided into two separate species – the Eloi and the Morlocks. The Morlocks do all the industrial work in the dark underground and feed on the Eloi who live a childlike and frivolous existence in a garden paradise maintained by the Morlocks. *The Island of Dr. Moreau* warns against the potential dangers of biotechnology and suggests that the animal – the beast – still lives within us in spite of our elevated and civilized aspirations. *The War of the Worlds*, according to some critics, an allegory on the ruthless imperialism of the West, tells the quintessential story of alien invasion, of mental evolution freed of emotionality, of the weakness of humankind in the face of greater powers in the universe, and ultimately, the capriciousness and ironies of survival in the world of tomorrow. *When the Sleeper Awakes* foretells a future world ruled by rich capitalists, where workers are suppressed and controlled through behavioral technology, and robbed of their freedom. *When the Sleeper Awakes* anticipates many of the most famous dystopian stories of the twentieth century, including *Metropolis*, *Brave New World*, and *1984*.<sup>26</sup>

Yet beginning in 1902, first with the publication of two non-fictional books, *Anticipations* and *The Discovery of the Future*, Wells begins in earnest to argue for his progressive and utopian ideals about the future. Science fiction utopian novels would follow in the years ahead, including *The Food of the Gods*, *A Modern Utopia*, *The World Set Free*, *Men Like Gods*, and his most famous



utopian novel, *The Shape of Things to Come*. Wells' basic argument through all these utopian books, fictional and non-fictional, is that humanity's aggressive, self-centered, and power-hungry mentality will doom us to self-destruction, and a global and humanitarian culture, informed by reason and science, needs to rise up and gain control of the world if we are to survive and flourish.<sup>27</sup>

The utopian novels of Wells usually took the form of narrative histories, tracing first the collapse of contemporary civilization and second the rise of a new world state. These "future histories" of humanity, written in dramatic form, anticipated many later science fiction "future histories", such as those by Asimov and Heinlein, where the future is told as a story extending outward through a series of challenges, defeats, and triumphs. Wells did not see progress as a peaceful steady movement forward, but rather as involving conflict, revolution, destruction, and rebirth out of the ashes. The struggle into the future entailed an ongoing tension and conflict between the forces of the past and the forces of the future, between our more primitive tribal mentality and a more progressive ethical mentality.<sup>28</sup> The future is best seen as a dramatic story or series of stories.

Although war may be inevitable in the near future and perhaps necessary for the birth of a new world civilization, Wells also articulated in considerable detail many ideals, principles, and features of a positive and more ethical future. He even foresaw the possibility that humanity would evolve and transcend itself, achieving a higher level of universal consciousness, God-like in nature.<sup>29</sup>

For Wells, the history of humanity is a great drama, a story of the oppositional forces of our primitive and animal ancestry and our forward-looking rational and ethical mentality. All his life, Wells wrestled with the conflicting forces of despair and hope: Would humanity rise above the barbarity of the past or were we doomed? This dynamical tension in all of its manifestations is the underlying essence of our nature. We are a story unfolding with an uncertain resolution. We have arisen out of the "tooth and claw" struggle for survival in the natural world and now we face our greatest challenge – to somehow transcend our beginnings, while at the same time acknowledging and understanding our origins, and create a new world using our evolved powers of reason and morality.

According to Clute, early twentieth century science fiction was predominantly optimistic about the future. Clute refers to the first decade of twentieth century science fiction as "A Glowing Future." Progress was presumably speeding up and there was great hope that humanity, civilization, and technology would continue to improve. There were many upbeat space adventures and positive heroes imagined in science fiction. Yet during this period there were also many future war novels.<sup>30</sup> In the decade before the First World War, apprehensions of an impending world conflict were clearly in people's mind.

Clute believes that early science fiction stories describing future wars were written as warnings of possible disasters. They weren't intended to predict, but rather to show the undesirable consequences of political policies and potential applications of new technologies. The "warning scenario" is a common theme within futurist thinking, both in science fiction and non-fictional books on the future. *Frankenstein* and *The Island of Dr. Moreau* can be viewed as warnings regarding the unbridled use of biotechnology to serve the vain aspirations of

power obsessed scientists. The logic of such warning scenarios is if we keep doing what we are doing things will get worse, hence we should change what we are doing. The futurist Wendell Bell refers to such predictions as "**presumptively true.**"<sup>31</sup> Hopefully the warning will change human behavior and the predicted negative effects will not occur. Such dark images are supposed to raise our consciousness and provoke corrective action. As J. T. Fraser puts it, "...nightmares are dreams whose usefulness is to keep us on our toes."

Like Clute, the contemporary science fiction writer Frederick Pohl also argues that science fiction does not attempt to predict the future.<sup>32</sup> Of course, as a form of literature, science fiction is intended to entertain and stimulate the imagination and to move the heart. Yet contrary to Clute and Pohl, even if the purpose of a story is no more than to warn of possible consequences of present trends, this activity has a predictive aspect. Again, the logic of a warning is "If we continue to do X, then Y will follow." This is a conditional predictive statement.

Science fiction creates characters and events that are imaginary and not literally true. Clearly, if one is writing a story about the future, then the events portrayed are hypothetical rather than real. Still, although futurist science fiction is imaginary, many of the great science fiction writers, such as Jules Verne, H. G. Wells, and Arthur C. Clarke, created future worlds involving a variety of intentional predictions about the future. Science fiction often attempts to create plausible futurist scenarios and extrapolations on present trends. At the very least it gets the reader thinking about the various possibilities of tomorrow and it has actually inspired outside of the genre a host of predictions and goals for the future. It has even provoked the real-world creation of technologies and hypothetical realities envisioned in its stories. Science fiction may accurately predict the future by creating the future that it is imaginatively predicting.

Another useful way to see the predictive dimension of science fiction is to view science fiction stories as narrative "**thought experiments.**" Some hypothetical state of affairs is imagined, for example, cities in the future, contact with alien intelligence, or a world wide catastrophe, and a story is told exploring the possible effects or repercussions of the imagined scenario. Or the thought experiment can simply be, given the present conditions in the world, what hypothetical consequences will emerge over time. Thought experiments are a common practice in science – often as a prelude to doing an experiment. In science fiction the consequences of a state of affairs are conceptualized in the form of a story, rather than a set of measurable controlled variables as in a scientific experiment. Science fiction stories allow us to think through the possible consequences of different imagined futures or the possible future effects of present trends and developments.

Hence, although science fiction is fiction rather than fact, futuristic science fiction predicts, extrapolates, and imagines in story form possible future developments in our world, as well as in the universe at large. Acknowledging that many of the predictions contained in science fiction stories have turned out to be mistaken, the bottom line is that science fiction, based on extrapolations of present trends, has made numerous relatively accurate predictions about the future and does realistically consider the possibilities of the future. Even if its

stories take the form of “presumptively true” warning scenarios, with the clear purpose of stimulating people into action to prevent the events portrayed in the story, a conditional prediction is still being made.

The second decade of the twentieth century witnessed a time of great escapism in science fiction from the ongoing horror of the First World War. Through the writings of Edgar Rice Burroughs (1875 – 1950) one could escape to an alien world, or the primitive jungle, or a land populated with cave men and dinosaurs. Also during this period many stories were written about aerial empires, consisting of huge spaceships or floating cities in the sky. The reader could escape to some imagined perfect world in the heavens above. The apocalypse, having been envisioned and now encountered, became a stimulus for escape into a presumed better tomorrow, or some strange other land. We thus encounter another dual dimension in science fiction. It can provide a way to see more clearly where we may be heading, or it may provide a way to run away from an unpleasant reality into some more pleasing and hopeful world.

Following World War I, the level of apprehension and ambivalence over the future continued to manifest itself in science fiction. In this period, numerous stories of futurist cities were written. Sometimes these future cities were vast and ultra-technological with mile high skyscrapers; other scenarios presented future cities as great ruins following some imagined worldwide catastrophe.

Of special note, one of the early great science fiction movies, *Metropolis* (1926), was produced, showing the technologically optimistic, but equally negative social and political side of a futuristic city.<sup>33</sup> *Metropolis* is a beautiful high-tech city above the surface, where the wealthy enjoy all the benefits of economic and technological progress, but below the surface, the workers, who maintain the city, toil in mechanical, depressive drudgery and monotony without any of the benefits enjoyed by the wealthy above. Perhaps science and industry will lead to great technological achievements but with disastrous social consequences. The darkness and the light are not an “either-or” but a “both-and.”

In the 1920s robots become a highly visible presence in science fiction. The term “robot” comes from Karel Capek’s play *R.U.R.* (Rossum’s Universal Robots) (1924). A classic early example of a robot – in this case female - can be found in *Metropolis*. Though the term “robot” means indentured labor in Czech (Capek’s native language), the fear from the beginning in science fiction stories was that robots – our own creation - would turn on us. In *Metropolis*, the female robot, under the control of a mad scientist and a heartless government official, is directed to lead the working class humans of the city to a self-destructive end.

The robot in science fiction is a symbolic synthesis of humanity and the machine – equally the human becoming machine-like, being assimilated by its technological creation, as well as the machine becoming human, embodying our worst qualities and characteristics. It personifies our fear of science and technology, as well as our fear of what we may become. In humanity’s attempt to create life and sentience (and hence be like gods), our own creation may turn on us. We may destroy ourselves through our machines. Or worst, we may become machines. The robot is a concrete symbol of threatening technology, human corruption, and the quest for power. It is a classic archetype of science fiction.

## Cosmology, Future History, and the Golden Age

In the 1930s and 1940s science fiction flourished and vastly increased in popularity within popular culture. This period is frequently referred to as the “**Golden Age**” of science fiction. One type of science fiction story that blossomed in the Golden Age was the “**space opera**.” Space operas are dramatic epics set in outer space, involving both adventure and danger, with great stellar ships, amazing technological weaponry, alien life forms and evil forces, and colossal space battles. Clute views early space operas as a form of high escapism, first from the Great Depression and then the growing threat of the Second World War. The space opera provided a vision of the future as a great adventure into the unknown yet with a continuation of war and conflict, now staged on a cosmic scale. It is a classic mythic form of science fiction.

During the Golden Age, E.E. (“Doc”) Smith led the way in the development and popularization of the space opera. What is noteworthy about Smith’s novels is their cosmic scope. In his two most memorable series, the *Skylark of Space* and *Lensmen* novels, the forces of good and evil battle across the galaxies over billions of years, beginning in the distant past and extending into the far future. In the *Lensmen* series Smith envisions immensely powerful alien life forms with highly advanced technological capabilities and incredible space armada. Humans are drawn into the cosmic saga, achieving heroic status in the fight of good against evil. Within rousing adventure stories, Smith expands our perspective on ourselves to the farthest reaches of space and time.<sup>34</sup>

“Doc” Smith may have taken the reader to the ends of the universe in gargantuan spaceships, but it is the British philosopher Olaf Stapledon (1886 – 1950), also writing in the 1930s, who is usually considered the most cosmic of all science fiction writers. Perhaps the most imaginative and intellectually powerful writer in the history of science fiction, Stapledon wrote only five science fiction novels. Stapledon approached science fiction as a philosopher, an historian of cosmic dimensions, and a metaphysician who pondered the deep questions of existence and the meaning and nature of reality. Although future technologies and space travel play a role in his stories, Stapledon explores all the varied possibilities of the future, humanistic and scientific. Stapledon’s novels are concerned with the ultimate reaches of life, mind, civilization, and spirit.

Of particular note, Stapledon wrote two vast and inspiring epics of the future. The novel *Last and First Men* (1930) traces the complete history of humanity two billion years into the future. Humanity goes through various evolutionary transformations within this immense history – the novel chronicles the historical journey of 18 generations or types of humans into the future. Human civilizations rise and fall, we journey to and settle various planets in the solar system, we biologically and technologically enhance ourselves in varied ways, discover how to travel through time, and achieve great insight and understanding scientifically, spiritually, and philosophically. Yet, in the end,

humanity passes into extinction, a brief “music” and “brave theme” within the vast “music of the spheres” of the universe.<sup>35</sup>

The second novel, *Star Maker* (1937), unfolds on an even grander scale. Arthur C. Clarke describes *Star Maker* as “Probably the most powerful work of imagination ever written.” *Star Maker* explores the idea that in the vast reaches of the distant future – tens of billions of years from now - the combined efforts of all intelligent life in the universe achieve contact with “The Star Maker,” the creator of the universe.<sup>36</sup> In *Star Maker* Stapledon tells the story of the rise of galactic empires and galactic minds leading eventually to “cosmical mentality” and a “cosmical utopia”. In the finale of this epochal tale, the universe itself is transcended as the “Star Maker” reveals an infinite array of created universes, from the most primitive to the “ultimate cosmos.” We peer into the mind and the creations of God and are bedazzled and humbled. The story is a great cosmic myth of the absolute future.

Stapledon's writings epitomize the intellectual and philosophical adventure of the future set within a science fiction context. Stapledon thoughtfully considers the historical causes of events, the social and psychological changes that bring about the unfolding of the future, and the implications and consequences of such changes. His books read more like history and philosophy than fictional novels. Individual characters are “swept aside” as Stapledon discusses the great saga of events over millions and billions of years. There is a sense of wonder and awe as well as cosmic revelation within *Star Maker*. The images of the future engulf the reader – we are transported to the edge of infinity. Further, Stapledon writes with great profundity and speculative detail – pondering the meaning of existence and describing innumerable strange and alien realities along the way. Stapledon rivaled, if not exceeded, Wells in imaginative power, and he clearly demonstrated the sense in which the future is the ultimate adventure of the mind.<sup>37</sup>

Stapledon transcended the darkness and limitations of his times, by moving outward into a vast cosmic context – a cosmic context in both space and time. To borrow a phrase from the great seventeenth Century philosopher Baruch Spinoza, Stapledon examined humanity and the grand panorama of existence and intelligence “through the eyes of eternity”. For Stapledon, the future of the cosmos is evolutionary and historical – it is a great saga of advance, decay, transformation, and ultimate revelation. The future is no longer just an arena of human affairs, but a great universal epic populated by innumerable alien minds and civilizations on a great quest of creation and discovery. Where was the entire scheme of things heading?

Although Stapledon in both *Last and First Men* and *Star Maker* describes the future from a vast panoramic perspective, recounting events, trends, and accomplishments across billions of years without much mention of individual characters - to use the expression of the historian David Christian, he writes a “big history” of the future - Stapledon does tell these stories from a personal point of view. In each novel, there is a central human character, who recounts the histories, and in the case of *Star Maker*, actually experiences the events. These tellers of the tales bring their personal feelings and thoughts to the story – they react to and ponder over the great saga of future history. This individualized

perspective gives both novels a personal dimension. This personalization of a cosmic future achieved in a science fiction narrative is a unique strength of the genre. All of the future histories and epics of Wells, Smith, and Stapledon in different ways combine the personal and the cosmic. Science fiction stories address both the inner and outer dimensions of human reality – the macrocosmic and the microcosmic.

Wells, Smith, and Stapledon all take a cosmic perspective on the future. Can we accurately understand the future of humanity without seeing ourselves "through the eyes of eternity"? Modern science fiction often sets the saga of the future in a cosmic context, a perspective that reflects much earlier religious myths. Although ancient myths were limited in their visions of the universe, the attempt at least was made to describe the future of humanity within a cosmic context. The cosmic perspective reasserts itself within science fiction, now redefined and significantly expanded beyond traditional myth by science, evolution, and space technology. A scientifically informed vision of outer space now becomes the new cosmos. Yet as Stapledon and other great science fiction writers have realized, though the exploration of outer space clearly involves a technological and scientific dimension, it will involve the expansion and evolution of all facets of human civilization. All aspects of human existence need to be rethought as humankind moves outward into this new cosmic environment. The exploration of outer space, a central theme in science fiction, provides a cosmic setting for all aspects of the future evolution of humanity.

Turning from the cosmic to earthbound concerns about the future, two of the most famous futurist novels written during the 1930s and 1940s explored with great narrative power the darker sides of technologically advanced highly controlled human societies in the future. These two dystopian novels of the future are Aldous Huxley's *Brave New World* (1932)<sup>38</sup> and George Orwell's *1984* (1949).<sup>39</sup> The novels depicted future worlds where individuality had been squashed through pharmacological stupefaction in *Brave New World* and social – psychological control in *1984*. The novels were written as warnings regarding possible negative consequences of social and political developments in the world. They were also seen as indictments of contemporary modern Western society.<sup>40</sup> *Brave New World* and *1984* captured and amplified many of the fears and apprehensions of the modern world.

In both *Brave New World* and *1984* it is our freedom and individuality - two of the central guiding ideals of the Age of Enlightenment - that are lost. But the primary cause of this loss is not advancing science and technology. Rather it is human nature itself and its social-political institutions that undermine and destroy freedom and individuality.

In *1984*, "Big Brother" – the personified omnipresent eye of the government – watches over all its citizens, demanding total obedience, devotion, and conformity. Truth is destroyed through the continued rewriting of history and psychological conditioning. Orwell's apprehensions over the rise of totalitarianism in his time are transformed into a dark nightmare in which the human spirit has been killed and paranoia reigns over everyone. The government controls its citizen's minds – their very beliefs of what is true and what is right – and through

constant warfare and incessant propaganda creates an oppressive and sinister mindset in the population.

In *Brave New World*, future humanity is reduced to pleasure-addicted empty souls. Peace, stability, and happiness are achieved through the sacrifice of all creativity, curiosity, and discontent. People do not read, not because books are forbidden, but because no one wants to read anymore. Science, art, and religion have been eliminated through drugs (“soma”) that make almost everyone as happy and frivolous as an innocent child.<sup>41</sup>

Orwell worried over the growing oppressive control of totalitarianism in the name of absolute social order; Huxley was concerned with the shallow human desire for individual pleasure. In *Brave New World* there is no pain; in *1984* there is no pleasure. Both fictional worlds are stagnate; ultimate order is achieved at the price of any real growth or change.

Whereas the great space operas of “Doc” Smith and the evolutionary sagas of Olaf Stapledon carry the human spirit to cosmic heights, the dystopias of Huxley and Orwell bring us back down to earth and the weaknesses and evils of the human soul. Such is the range of science fiction, metaphysically and ethically, from the shadows on Plato’s cave and the desires of the Freudian id to the brilliance of the light of eternity.

Both *Brave New World* and *1984* might not be considered true science fiction since the primary focus of both novels is social criticism and warning regarding political and psychological trends set in the context of the future. Yet, science fiction evolved as the twentieth century unfolded. As was the case with *1984* and *Brave New World*, as well as with much of what was being written in the 1930s and 1940s and thereafter, the label of “science fiction” was too limiting for what was being written within the genre.

The name “science fiction” derives from the term “scientifiction”, coined by Hugo Gernsback. Gernsback used the term to describe the type of stories he published as founding editor in his pulp magazine *Amazing Stories* beginning in 1926. Gernsback was highly enthusiastic about the potential wonders and benefits of future technology. *Amazing Stories* showcased how science and technology could transform the world into a “technological utopia”.<sup>42</sup> But science fiction went beyond science and technology to include all aspects and dimensions of human reality in the future, including society, politics, and psychology. Science fiction became all-enveloping futurist narrative.

### **Evolution, Space, Time, and War**

Among the many stories that were written in the 1950s about nuclear war and its possible consequences, the most famous was Walter Miller’s award winning *A Canticle for Leibowitz*, considered by many the greatest science fiction novel of all time. The novel examines the aftermath of an atomic apocalypse in the context of religious, philosophical, and spiritual themes.<sup>43</sup> In *A Canticle for Leibowitz*, a Third World War occurs which destroys modern civilization and propels humanity back to a much more primitive level of technology and social organization. Over the millennia though humankind again “advances upward” to

nuclear technology and weaponry and starts a whole new world war, blowing civilization to smithereens for a second time. Abandoning hope that the earth will ever achieve a peaceful and moral civilization, some humans escape the earth in a spaceship. Perhaps the earth is doomed. Progress can not prevail and knowledge can not sustain us. The only answer is to abandon ship and leave.

A more drastic type of new beginning is envisioned in Clifford Simak's highly imaginative and deeply moving novel *City*, published in the early 1950's.<sup>44</sup> In his forward to the novel Simak describes his disillusionment with humanity in the 1940's, a humanity that in its "madness for power, would stop at nothing," and how he first started writing *City* as an escape from the "horror" around him. In *City* Simak tells an epic tale of the future, where humankind eventually abandons the earth, leaving it to be ruled by intelligent animals, in particular dogs, who ponder and wonder whether the ancient stories of man are merely myth and fantasy of the distant past.

One writer who achieved great popularity in science fiction in the 1950s and worldwide fame, a decade later in the 1960s, is Arthur C. Clarke. In his stories, Clarke explored the grand cosmic themes of science fiction and the future, weaving cosmology together with mythic ideas and speculations on human evolution. In his classic science fiction novel, *Childhood's End* (1953), a vast armada of alien space ships encircles the earth, establishes communication with humanity, and guides the transformation of humankind to a higher form of life and intelligence.<sup>45</sup> Interestingly, the aliens look like incarnations of the Devil, suggesting that our early myths of a serpent-like creature that tempts us to rise above the level of obedient children was perhaps a futurist premonition.

Clarke addresses the same theme of evolutionary human transformation in his popular *2001* trilogy, where humans again make contact with a vastly advanced alien intelligence and a humanoid "Star Child" is created as the next step in our evolution. In *2001*, the evolution of humanity from our primitive beginnings as ape-like creatures is credited to alien intervention.<sup>46</sup> Minds of a cosmic nature are guiding our ascension through time – an idea that clearly resonates with religious ideas of the past, except now the cosmic intelligence is natural rather than divine and the means of transformation is scientific and technological rather than supernatural.

Throughout his career Clarke has explored the high-tech, high-science end of science fiction and often synthesized it with the mystical, mythic, and cosmic.<sup>47</sup> The themes of ancient myth are assimilated and recast in modern cosmology and scientific speculation. God does not disappear but is re-conceptualized in an evolutionary context and often given the metaphorical face of an alien.

As can be seen, future human evolution is a topic that many science fiction writers have addressed. Psychological evolution is the central theme in Theodore Sturgeon's science fiction classic *More Than Human* (1953).<sup>48</sup> In this novel, a small group of socially outcast humans merge into a group-mind (in telepathic contact) and become a "Homo Gestalt." Telepathic evolution is also a central theme in Alfred Bester's Hugo prize-winning *The Demolished Man* (1953). This novel is set in a future world where police can read minds and criminals



learn to hide what they are thinking in their own minds. Much of the action in this psychologically intense story takes place in “mental space” – in the thoughts and counter-thoughts of the pursuer and the pursued.<sup>49</sup> Yet perhaps the most memorable and touching story of human evolution of this period was Daniel Keyes’s *Flowers for Algernon*. Through various new scientific treatments, Charlie Gordon, a congenital imbecile, is turned into the most mentally advanced human who has ever walked the earth – a genius of immense capabilities. Yet the transformation does not hold and Charlie eventually turns back into his old self – only dimly aware of the great heights to which his mind had ascended.<sup>50</sup>

In general, the theme of biological and psychological evolution in humans can be either hopeful or fearful in its tone and implications. It may be normal humans who out of fear attempt to subdue or kill the more highly advanced humans. In Howard Fast’s “The First Men” a group of super-intelligent children must defend their lives against government and military forces that want to destroy them.<sup>51</sup> The theme of the old versus the new, of what is normal versus what is strange and different is frequently played out in stories about future human evolution. Even if we do evolve in the future, there undoubtedly will be a dramatic struggle between the “new humans” and “old humans” fearful for their own continued survival and control of the world.

Both space exploration and aliens have been highly popular themes in science fiction since its beginnings. Through the 1950s, and in the decades to follow, space exploration and alien contact have continued to be ubiquitous features in much of science fiction, in both cinematic and literary forms.

The alien from outer space is, in fact, one of the central archetypes of science fiction. The alien represents the unknown and the fantastical personified, often possessing intelligence and technology far beyond human abilities. The alien is the transcendent and at the same time a creature that emerges out of the darkness. Symbolically, the alien is the mysterious and frightening future.

Some classic science fiction novels involving space exploration and alien contact include Ray Bradbury’s *The Martian Chronicles* (1950); Stanislaw Lem’s *Solaris* (1961); and Larry Niven’s epic adventure and award winning *Ringworld* (1970).<sup>52</sup> In *The Martian Chronicles* it is humans, exploring and settling Mars, who destroy the indigenous Martians and their civilization. In *Solaris*, it is the alien who gets the upper hand on us. In this highly original tale of alien contact, humans are unable to communicate with or understand the alien intelligence, which in fact is embodied within the entire oceanic surface of an alien planet. The alien intelligence manipulates the minds of the human settlers by speaking to them through their dreams and driving them mad. In Niven’s novel, humans, and an assortment of interesting aliens, partner and travel to a huge and apparently abandoned “ringworld” that encircles a distant sun. Ringworld is immense in proportions, millions of miles in circumference and thousands of miles across. It is a marvel of solar and ecological engineering. The novel revolves around the mystery of what possible intelligence and advanced technology could have constructed such an immense object and then for no apparent reason abandoned it. The aliens of *Ringworld* are wondrous and enigmatic.

## The New Culture and the “New Wave”

The 1960's was revolutionary, both socially and technologically. It was a complex and unsettled time. It was a time of both faith and anti-faith. The decade saw the beginnings of a cultural revolution in the modern West against many of the central images and ideals of modernity. Traditional cultural values came under attack. Economic and technological progress was rejected by many individuals as too materialistic. The 1960s were a time of great cultural experimentation and revelry - of consciousness raising, free love, and dropping out of society - of liberation, adventure, madness, and freedom

Within science fiction there is a corresponding liberation, revelry, and Dionysian quality – of art mirroring life. Reflecting popular culture, science fiction became increasingly concerned with psychological, social, and ethical themes. Science fiction, which had always contained a strong element of social criticism and warnings about the negative consequences of contemporary trends, became even more critical of the modern world.

Science fiction saw the beginning of the “**New Wave**” as experiments in more literary, psychological, and humanistic writing become popular. Three of the most highly regarded, Hugo winning science fiction novels of all time *Stranger in a Strange Land* by Robert Heinlein, *Dune* by Frank Herbert, and *The Man in the High Castle* by Philip K. Dick were published. All three of these novels highlighted issues of culture, ethics, and the exploration of alternative social and religious belief systems.<sup>53</sup>

One of the most influential voices of the “New Wave” was Harlan Ellison. In 1966, Ellison won the Hugo award for best short story with his “ ‘Repent Harlequin!’ Said the Ticktockman”.<sup>54</sup> Inspired by Henry David Thoreau’s essay on “Civil Disobedience”, Ellison’s story reflects the rebellious and individualist philosophy of the 1960s counter-culture. It is a critique on the regimentation and orderliness of contemporary society.

One of the best stories of the 1960's is Philip José Farmer's “Riders of the Purple Wage”, a hilarious, irreverent tale of the future set in the year 2166.<sup>55</sup> Winner of the Hugo Award for best novella in 1968, “Riders of the Purple Wage” is a story that could not have been written, let alone published, a decade earlier due to its “colorful”, irreverent, and explicit language and madcap, bizarre scenarios. The story stretches the imagination of the possible, the permissible, and the socially acceptable like no other story of the “New Wave.” The story is true to the exploratory spirit of science fiction. It expands the universe of the mind, the senses, the emotions, and one’s ethical and social values.

When he wrote “Riders of the Purple Wage”, Farmer was already acknowledged as a writer who broke through social constraints and contemporary taboos. In particular, Farmer brought sex into mainstream science fiction.<sup>56</sup> In spite of the presumed freedom of thought, in its earlier years science fiction had stayed relatively conservative regarding traditional social norms about sexuality. In Farmer’s *Strange Relations* a human develops a sexual and totally dependent relationship with an alien plant, and in his novel *Flesh*, future earth

has returned to a Goddess-centered religion, where sex has become a sacred yet public spectacle.<sup>57</sup>

Another important writer of the “New Wave” was Michael Moorcock, who wrote *Behold the Man*, the story of a time traveler in search of the historical Jesus. *Behold the Man* can be read as an irreverent, if not blasphemous challenge to the orthodox Christian belief in the divinity of Jesus Christ, since it is a neurotic, self-absorbed mere mortal from the twentieth century who turns out to be, reluctantly and inadvertently, the actual Christ of history. The time traveler is born in the present, returns to the past, dies on the Cross, but is born again in the present, only to circle back again in time in an eternal loop with no ultimate beginning or end. As noted above, “New Wave” science fiction, as a reflection of the revolutionary 1960s, repeatedly challenged traditional cultural and social norms, beliefs, and values. Moorcock, as both a writer and the editor of *New Worlds* magazine, was one of the leading figures in this rebellion against convention and the intentional assault on social taboos.<sup>58</sup>

Another writer, who achieved great popularity in the 1960s, and repeatedly incorporated mythic elements into his stories and novels was Roger Zelazny.<sup>59</sup> In the early 1960s, Zelazny created one of his most highly praised stories, “A Rose for Ecclesiastes”. The story takes place on Mars and involves a linguist from Earth who is drawn by a beautiful Martian temptress into fulfilling a Martian myth – that someone will appear (from the sky) and renew the race and the vitality of the decaying Martian civilization.<sup>60</sup> Zelazny weaves together elements of the philosophy of Ecclesiastes – a belief system that rejects all striving as vainglorious and pointless, which seems to capture the essence of both Martian philosophy and the attitude of the reluctant Messiah – with the metaphor of the rose – a symbol of beauty and rebirth that transcends the nihilism and fatalism of Ecclesiastes.

In the reworking of old myths, science fiction creates new myths for the future. As we have seen, the mythic, the religious, the metaphysical, and the cosmic have all been areas explored in science fiction. Science fiction looks at all these dimensions of reality in all their manifestations, both uplifting and deific and dark and demonic. In so doing, science fiction offers us mythologies of the future and ultimate visions of the universe to inspire or terrify the soul. As Disch notes, the fantastic realities and creations of science fiction have often served as the stimulus for contemporary religious and spiritual movements.<sup>61</sup>

One writer of the 1960s and 1970s who delved into the metaphysical, who repeatedly questioned the meaning and nature of reality, and who ultimately became a mythic figure himself was Philip K. Dick.<sup>62</sup> In his Hugo Award winning novel *The Man in the High Castle*, Dick plays with the reader’s mind, questioning what is real, and what isn’t, and whether the distinction is always that clear.<sup>63</sup> The popular movie *Bladerunner*, based on Phillip K. Dick’s science fiction classic *Do Androids Dream of Electric Sheep?* (1968), explores various themes and questions regarding manmade intelligent androids and their relation with their human creators. In the story one group of androids decides to search out and hunt down their human creator with the hope of extending their lifespan.<sup>64</sup> The created go after the creator. The androids though are hunted by a governmental

assassin - a "bladerunner". The ironic twist in the story is that the "bladerunner" is himself an android, having false memories placed in his own mind to give him the false notion that he is human, but he is really being manipulated by the humans to kill his own kind. In the final analysis, the question is clearly raised regarding who is actually more "human" – the androids or their inhumane creators.

The future is as much an adventure into the metaphysical and the nature of reality as it is a saga of the promises and perils of technological and social progress. In his novels and stories, and often in a dark, haunting, and disturbing fashion, Dick delves into the nature of consciousness, personal identity, truth and illusion, good and evil, and the tenuous and ambiguous borderland between madness and sanity. Whereas other "New Wave" writers challenged the cultural and social norms of modern society, Dick went further and challenged the philosophical underpinnings of our world and collective mindset. For many science fiction devotees, Dick's writings, with their dark complex settings and frequent excursions into altered consciousness and mind control, anticipated the feeling and atmosphere of cyberpunk long before this movement had a name.<sup>65</sup>

One highly important cultural transformation that began in the 1960s and grew in the next few decades was the feminist and women's rights movement. Women became an increasingly powerful voice in contemporary Western culture, and reflecting this general cultural change, women became a much more significant voice in science fiction in the 1970s and 1980s.

Ursula LeGuin led the way. She emerged as one of the most honored science fiction writers of her era. In 1969 LeGuin won the Hugo and Nebula awards for best science fiction novel of the year. The novel awarded was *The Left Hand of Darkness*. It is a story about gender and sexual stereotypes, set on an alien planet where the inhabitants change their sex during their fertile season. *The Dispossessed*, published five years later, also won both the Hugo and Nebula for best novel. This novel describes two "utopian" yet totally different societies which exist on an alien planet and its moon. It is a study in the meaning, value, and various limitations of presumed "ideal societies."<sup>66</sup>

One superb example of a woman science fiction writer who emerged in the 1960s, breaking the stereotypes of the supposed "feminine" mindset and personality, was James Tiptree, Jr. - the pen name of psychologist Alice Sheldon. Tiptree was the mystery "man" of science fiction. While no one had actually met Tiptree, many people swore that "he" must be a man because of the way "he" wrote. Before revealing her true identity coincident with the publication of her story, ironically titled, "The Women Men Don't See", Tiptree wrote such classic tales as "Love is the Plan, the Plan is Death" – a love story about aliens where the father is fed by the mother to their children - and "Her Smoke Rose Up Forever" – a study regarding the immortality of painful life defining memories.<sup>67</sup>

Aside from LeGuin and Tiptree, some of the other leading women science fiction writers who appeared in the 1960s and 1970s include Anne McCaffrey, Vonda McIntyre, and Joanna Russ. McCaffrey became very popular with her *Dragons of Pern* series, in which women characters, breaking the weak and dependent female stereotype, participated in various adventures on alien worlds riding on the backs of dragons.<sup>68</sup> Again, with female characters as the central

protagonists, McIntyre won awards for her story “Of Mist, and Grass, and Sand” and her novel *Dreamsnake*.<sup>69</sup> Disch identifies *The Female Man* by Joanna Russ as the best feminist science fiction ever written. It is a story of feminine empowerment in which women without men have successfully populated and survived on an alien world for thirty generations.<sup>70</sup>

Within science fiction literature, women writers have flourished since the 1970s. C.J. Cherryh, an incredibly prolific writer, has created within her stories an intricate future history of humanity stretching out two thousand years into the future and across the Milky Way. Two of Cherryh’s novels, *Downbelow Station* and *Cyteen*, have won the Hugo award for best science fiction novel of the year.<sup>71</sup> Another of the most frequent award winning science fiction authors of the last ten years is Lois McMaster Bujold. Five of her novels, *The Vor Game*, *Barrayar*, *Mirror Dance*, *Falling Free*, and *Paladin of Souls* have won either the Hugo or Nebula for best science fiction novel of the year.<sup>72</sup> Connie Willis has won more Hugo and Nebula awards for both her novels and short stories than any other science fiction writer, man or woman, ever. Her highly acclaimed *Doomsday Book* and *To Say Nothing of the Dog*, both Hugo award winners for best novel of the year, involve time travel scenarios. The latter is high comedy; the former is deep horror. In *Doomsday Book*, a synthesis of historical scholarship, science fiction, and psychological and theological considerations on the issue of good and evil, a woman graduate student in the future is accidentally sent backward in time to England and the time of the Black Death.<sup>73</sup> Octavia Butler, breaking another stereotype as an accomplished black science fiction writer who is also a woman, has written extensively on social, racial, ethnic, and urban issues. Her *Parable of the Talents*, set in a decaying future America beset with racism, religious fundamentalism, and urban poverty, won the Nebula award in 1999 for best science fiction novel of the year.<sup>74</sup>

### **Cyberpunk and “How Science Fiction Conquered the World”**

In the 1980s science fiction “conquered the world,” or at least the West, and quite appropriately, it happened through one of the most powerful forces of Western culture – the movies. *Star Wars* emerged as a pervasive social phenomenon, spawning web sites, fan clubs, video games, unending media coverage, and an invasion of millions upon millions of toy characters into the households of America, Europe, and Japan.<sup>75</sup> Other very popular science fiction movies of this period, and there were many, included *E.T.: The Extra-Terrestrial*, *Mad Max 2*, *The Thing*, *Alien* and *Aliens*, *Back to the Future*, *The Terminator*, *Dune*, and most notably *Blade Runner*. *Star Trek: The Next Generation* began on TV and the movie series continued in the theaters, further heightening the saturation of science fiction in the popular media. In general, the 1980s was a coming of age for science fiction films, which became much more popular than ever before. *Star Wars* and *E.T.: The Extra-Terrestrial* became two of the greatest money making movies in film history.

One reason science fiction movies became more popular in the 1980s was the quantum jump in special effects that occurred beginning first with *2001*

and really taking off in realistic simulation and fantastic mind-boggling visualizations in *Star Wars*. It was not so much that the stories or characters became more compelling, complex, or sophisticated, but rather the strange and bizarre characters, settings, and technologies (including spaceships) could be more powerfully and vividly presented on the screen than ever before. Behind this incredible advance in special effects was the computer. In the late 1970s, and into the 1980's and beyond, computer graphics became the wave of the future in science fiction film-making.

Reflecting the increased fascination with computers and the world transformed through information technology and artificial intelligence, cyberpunk emerged in the 1980s. **Cyberpunk**, a new sub-genre of science fiction, began with William Gibson's highly influential and Hugo-Nebula award winning novel *Neuromancer*.<sup>76</sup> Cyberpunk is many things – a complex swirl of social and technological ideas and associations revolving around the computer and the emerging computer culture. "Cyber" refers to both the world of computers and humans becoming **cyborg** or cyborg-like in their interactions with computer systems. "Cyborg" means a combination of human and machine.<sup>77</sup> According to Clute, "punk" refers to the "mean street" environment and mentality of the characters in the stories. For Disch, "punk" also means to oppose present normality. For Clute, within cyberpunk there is a feeling of dark city life, of intricate underground cultures, and of criminal societies and mysterious powers that control and manipulate the characters in the stories. There is the archetypal scenario of becoming entangled in the mesmerizing power of technology. The computer conquers humanity by entrapping our minds in its complex cogitations and machinations. As Clute describes it, within the cyberpunk world, **cyberspace** – the virtual reality created by computers - has become a drug that can lead to individual suicide. The self can fragment and become lost and out of control within cyberspace. Cyberpunk stories often embody the fear that computers and technology will gain control of human life, in particular, our minds. Disch's view of cyberpunk includes the themes of "amoral politics, urban squalor, global pillage, and systemic criminality."<sup>78</sup>

Clute asserts that within cyberpunk there are the same fears, same rebels and madmen, and same evil, all-powerful characters as in earlier science fiction. Yet I would add that cyberpunk reality has a whole new kind of freedom and metaphysical nature not found in outer space or other traditional science fiction settings. The computer, with all its technological and social-psychological effects and consequences, extends the arena of action and the horizons of reality in science fiction. Cyberspace is a world where the mind, through the power of the computer, defines the limits of reality; the inner states of the mind create this new reality and become part of the reality as well. Cyberpunk and virtual reality are metaphysical experiments – expanding the limits of the imaginable and the possible through the new science and technology of computers.<sup>79</sup>

Cyberpunk both reflects contemporary human society and influences it – a reciprocity of art and life. After *Neuromancer*, cyberpunk emerged as a popular cultural movement. Magazines such as *Wired* and *Mondo*, and the dark gothic anti-establishment vein within computer culture, all reflect the influence of

cyberpunk.<sup>80</sup> Cyberpunk is an excellent example of the hypothesis that “The best way to create the future is to predict it.” But cyberpunk is also an expression of present cultural trends, in particular Postmodern philosophy. Because of its dream-like and free associative qualities, there is often a loss of narrative logic and linearity in cyberpunk stories; it is a collage of visions and events. This non-linear structure mirrors both the Postmodern rejection of rationality and logic and the contemporary media reality of chaotic bits and blips of unrelated images and messages. Cyberpunk is an electronic phantasmagoria. Postmodernism and cyberpunk are counter-culture, rejections of our modern heritage of objectivity, rationality, and normality. Cyberpunk also reflects the subjectivist and individualist themes in Postmodern philosophy. In its extreme form, Postmodernism views reality as a subjective creation. Within cyberpunk the computer provides the means and power through which mind and intelligence can create a diversity of virtual worlds. Objectivity disappears.<sup>81</sup>

In *The Matrix* series, the ultimate paranoia trip, our entire world, unbeknownst to most of us, actually only exists in virtual reality – that is ‘in our minds.’ The central struggle in the movie is between the vast and powerful computer system that has created this virtual world and a few freedom fighters out to regain freedom and restore true reality to humankind. The philosophical question of course is whether this speculative scenario might in fact be true – how would we know?<sup>82</sup> The way reality is thrown into question in *The Matrix* is a theme of both cyberpunk and Postmodernism.<sup>83</sup>

### **The Vast Reaches of Space, Time, and Mind**

Within the last couple of decades, some of the most imaginative, literary, scientifically informed, and complex science fiction novels of all time have been written. Not only do these great contemporary novels address technological and scientific future possibilities, they also envision intricate and fascinating future societies and civilizations and innumerable psychological transformations in humanity. They are filled with philosophical, ethical, and religious themes and provide the drama, substance, and characters for a rich mythology of the future. These novels also provide an array of different timelines to consider in thinking about the future – from the near future to millions of years ahead.

Greg Bear is one of the most popular and accomplished contemporary science fiction writers, having written the classic biotechnological novel *Blood Music* (1985) and the Nebula Award winning best novels of the year, *Moving Mars* (1993) and *Darwin's Radio* (1999).<sup>84</sup> In *Darwin's Radio*, and its sequel *Darwin's Children* (2003), Bear explores the theme of future human evolution. In these two novels, Bear invokes the “punctuated equilibria” theory of evolution, proposing that highly stressful environments will instigate abrupt evolutionary change in humans. In *Darwin's Radio*, mothers around the world begin to give birth to a new species of humans, and instead of embracing this new species, humans collectively respond in fear, denial, and suspicion and attempt to control, if not destroy, this “epidemic” of mutations. Through both novels, the key theme explored is how the general population and our present social and political

institutions would react to a new form of humanity. Aside from being a highly researched and informed study in the biology of evolution, *Darwin's Radio* and *Darwin's Children* are excellent "thought experiments" in the social and psychological dimensions of human evolution.<sup>85</sup>

Bear's novel *Queen of Angels* is an immensely colorful tale of the possibilities of psychological evolution. *Queen of Angels* (1990) is set in Los Angeles in the year 2047.<sup>86</sup> The novel is a detective, murder mystery involving nanotechnology, psycho-technology, and issues of self-identity and consciousness. Humanity has separated into two classes – the technologically enhanced and un-enhanced. In this world psychologists possess the ability, through nanotechnology, to enter people's brains and link into their minds. Psychologists can explore a person's deepest feelings, memories, and thoughts in a virtual or cyberspace experience. The plot centers on tracking down a mass murderer and penetrating his mind to discover his reason for killing all of his closest friends and dearest admirers. While this main plot is unfolding, a parallel story is told in which a super-computer is attempting to determine if it possesses self-consciousness. Written with exuberant literary flair and philosophical sophistication, both plots revolve around the connected questions of personal identity, self-responsibility, and the nature of the mind and consciousness.

A second contemporary writer, Dan Simmons, has written one of the most highly regarded multi-volume science fiction epics of all time. This epic is a series of four novels, *Hyperion* (1989), *The Fall of Hyperion* (1990), *Endymion* (1995) and *The Rise of Endymion* (1997), set in the twenty-eighth through thirty-first centuries.<sup>87</sup> In Simmons' future universe, the earth has presumably been destroyed, but humanity has spread across myriad star systems and worlds, forming the Hegemony of Man. These worlds are all linked together by an intricate network of wormholes or "farcasters" through which humans can instantaneously travel. The first novel *Hyperion*, winner of the Hugo Award, is modeled on Chaucer's *Canterbury Tales*, and features seven archetypal pilgrims who set out on a "tree-ship" for the planet Hyperion, which lies outside of the farcaster network. The pilgrims, including a poet, a philosopher, a priest, and a warrior, tell their individual tales and their reasons for journeying Hyperion. *Hyperion* is immense in its scope and deals with religion, good and evil, time travel, artificial intelligence, and a plethora of different planetary ecologies and human societies.

In *The Fall of Hyperion*, the pilgrims must confront the Shrike, a technologically constructed, mysterious being from the future. While the pilgrims are drawn through a series of encounters with the Shrike, the Hegemony of Man is in a state of crisis presumably due to the imminent invasion of space-adapted humans, the "Ousters." Characters and beings of the past, as well as the future, populate the story as well. The name "Hyperion" is inspired by the poem "Hyperion" by the nineteenth century poet John Keats. In *The Fall of Hyperion* the mind and persona of Keats is recreated by powerful artificial intelligences that control the farcasters and all of human technology.

The saga continues through *Endymion and The Rise of Endymion*, with new twists that delve into the ultimate nature of reality, immortality, and the value



of the human soul. In the thirty-first century the Catholic Church has gained control over most of the human settled planets and literally bestows physical immortality (through technological means) on its followers if they become obedient to the will of the Church. The Church though is corrupt and has sold its soul to the Devil – the artificial intelligences first encountered in the earlier novels. A new Messiah appears – a child of Keats and one of the Hyperion pilgrims. She is pursued by the forces of the Church – which include sinister time-accelerated robot/androids that battle the Shrike. In these novels there is a fascinating spiritual debate between a futuristic Grand Inquisitor and a new Dalai Lama – a philosophical clash between Catholicism and Buddhism – and a time looping retelling of the Crucifixion and Resurrection.

Another Hugo award winner for best novel, *A Fire Upon the Deep* (1992) by Vernor Vinge, is set thousands of years in the future. The Milky Way, populated by a host of different intelligent species, including humans, is the cosmic setting for this magnificent modern space opera.<sup>88</sup> A group of humans inadvertently sets loose an advanced artificial intelligence that begins to spread across the Milky Way and envelop whole star systems and civilizations. The more technologically advanced worlds in the Milky Way are linked together via a communication system analogous to our present Internet. The viral intelligence – labeled the “Perversion” – moves through this cosmic Internet system, destroying worlds and capturing the minds of its inhabitants. The Perversion becomes a galactic computer virus.

One particularly interesting feature of this novel is an alien species and society of wolf-like creatures who possess “pack minds,” only having a clear sense of personal identity and consciousness within their individual packs. They possess “Gestalt Minds” and stay in mental resonance with each other through vibrating membranes on their skin which coordinate their separate nervous systems.

The group of humans that set the Perversion free has landed on the lupine planet, but they are ambushed and all killed except for two human children. The key to destroying the Perversion though may exist somewhere in their spaceship. A rescue mission of humans and aliens is sent to the planet. Humans must find a way to communicate with the wolf-like creatures and work together to stop the Perversion, yet these lupine minds live in a medieval feudal world, filled with treachery and deceit, including one nasty, ruthless leader pack that wants to gain control of human technology.

More recently Vinge has written a prequel to *A Fire Upon the Deep* entitled *A Deepness in the Sky* (1999), which also won the Hugo award for best novel of the year.<sup>89</sup> Once again Vinge creates a very interesting and memorable alien life form, this time a technological civilization of intelligent spiders that hibernate in a frozen state for 200 out of every 250 years when their sun periodically goes dormant. Vinge again delves into speculative psychology, describing a race of future humans that has achieved a tyrannical unity of “Focus” through the use of a biotechnologically controlled virus that infects their brains. These humans are manipulated by the leaders of their race to create a population of single-minded hyper-efficient individuals. The central alien

character Sherkaner Underhill, a genius, madcap spider who is leading his species to a new level of technological development that will allow them to function even when their star is dormant, becomes convinced that some form of alien intelligence (in this case it is the “focused” humans) is watching his world. The “focused” humans in fact want to conquer his world and use the planet’s resources and technology. Vinge again excels at combining futurist science and technology with fascinating psychological ideas and concepts. He considers the possibilities of mental evolution as well as alternative types of psychologies and how beings with different kinds of minds could communicate with each other.

Another classic series of novels written in the last decade is Kim Stanley Robinson’s Mars trilogy – *Red Mars* (1991), *Green Mars* (1994), and *Blue Mars* (1996).<sup>90</sup> All three novels won either the Hugo or Nebula for best science fiction novel of the year. These three volumes are probably the best science fiction books ever written on the colonization of Mars. The general question addressed in amazing detail in this trilogy is: If humanity was given the opportunity to create a new culture and civilization on an unspoiled world, what would happen? Robinson’s Mars trilogy is a grand utopian epic – a social-technological thought experiment of the highest order. Its power in particular lies in its multi-level richness and realism. Robinson exhibits an incredible knowledge of Martian geology, geography, and meteorology. He describes a vast array of ecological, biological, and geological engineering projects undertaken by the settlers of Mars, and in particular, those efforts toward terraforming the planet into a human inhabitable world. The scale of these engineering efforts is immense, from tethering an elevator cable from the surface of Mars to an orbiting asteroid to releasing enough underground frozen water on the planet to create a vast northern ocean. But Robinson also creates a fascinating set of characters. The cast of characters, representing many of the main cultures and ethnic groups from the earth, have different ideas and philosophies regarding the colonization of Mars, for example, whether it should be significantly altered to support human and animal life. They clash with each other over what the ideals of this new utopian world should be. The trilogy is a thoughtful debate, personified in various memorable characters, over the creation of a new world. Robinson also weaves into his story a socio-political and economic dimension, as powerful earth-based meta-national corporations are competing with each other and the settlers of Mars over control of the planet and its development. Robinson’s narration is vivid, logically coherent, and highly compelling. The sense of realism is so powerful and intricate, covering all the fundamental dimensions of human life that one forgets one is reading a science fiction novel.

Another contemporary writer Stephen Baxter writes on an immense cosmic scale. His book *Vacuum Diagrams* (1997) reaches out across the entire universe and millions of years into the future, as well as billions of years into the past.<sup>91</sup> This novel, which is part of a series of future history stories by Baxter, traces the future destiny of humanity and describes the ultimate cosmic conflict between the most powerful sentient forces of matter and anti-matter, the Xeelee and the Photino Birds, and the eventual escape of both the Xeelee and the last humans into another universe. The scope and imagination of Baxter’s future

history of the cosmos has been compared to Olaf Stapledon's vision in *Star Maker*.<sup>92</sup> But Baxter's chronicle of the life of our universe not only extends far into the future, but deep into the past as well. The conflict and struggle between the Xeelee and the Photino Birds begins 20 billion years ago and ultimately defines the central drama of the entire history of the universe. The Xeelee are incomprehensively beyond human intelligence and human civilization and inter-cosmic time travelers. They alter the history of the universe and their own evolution by journeying back to the beginnings of the universe and redirecting the sequence of historical events. In the far distant past – approximately 5 billion years ago – they begin construction of a portal that eventually provides an escape route into another universe four million years in the future. The fortunes of humanity rise and fall through Baxter's cosmic epic, with humans at different times coming under the rule and control of different alien species, and eventually being imprisoned by the Xeelee in a spatially curved world from which there seems to be no escape. Along the way, various intelligent species attempt to create God and predict the entire history of the universe.

Baxter is particularly good at applying contemporary science and technology, including quantum theory, nanotechnology, cosmology, and artificial intelligence theory, to his multifaceted speculations on the future. There are a great variety of advanced technologies in his novel that transform or manipulate space, time, the evolution of life and intelligence, and the physical laws of the universe, all of which Baxter explains in scientifically informed language. *Vacuum Diagrams* won the Philip K. Dick Award for the best science fiction novel of 2000.

### **The Power and Breadth of Science Fiction**

As can be seen from the historical review of science fiction that I have provided, science fiction covers a host of different themes and topics pertaining to the future. It addresses all the following areas of futurist thinking:

- **Human Society and Cities in the Future – Future Cultures**
- **Scientific and Technological Discovery and Innovation**
- **The Relationship of Humanity and Technology**
- **Human Evolution and the Nature of Mind, Self, and Intelligence**
- **The Evolution of Life – Biotechnology**
- **Environmental, Ecological, Solar, and Galactic Engineering**
- **Robots and Androids - Technological or Computer Intelligence**
- **Space Exploration and Space Colonization – Exploring and Understanding the Cosmos**
- **Alien Contact, Alien Civilizations, and Alien Mentality**
- **Time Travel – The Manipulation of Time**
- **Philosophical, Religious, and Spiritual Enlightenment – God**
- **Morality and Values – Good and Evil**
- **Women, Men, Love, and Sex in the Future**
- **New or Alternative Forms of Reality - Alternative Universes**
- **Future Wars**

- **The Nature and Value of Progress**
- **Natural and Cosmic Disasters – The End of Humanity**
- **The Transcendence of Humanity**
- **The Evolution of Anything and Everything**
- **The Ultimate Nature, Meaning, and Destiny of the Cosmos**

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In summary, science fiction both embraces and questions the Enlightenment idea of secular progress. Some stories view science, technology, and reason as leading to a better world – some stories identify flaws in either the ideals of secular progress, or the imperfect nature of humanity in realizing the goals of progress. But within science fiction, following the philosophy of the Enlightenment, whatever is said should be scientifically credible.

Science fiction has also been inspired by philosophical Romanticism. We need to consider human emotion and personal meaning in envisioning and directing our future. Science fiction arouses all the diverse and fundamental emotions in humans, including fear, hope, exhilaration, depression, joy, sorrow, awe, humility, and humor. Also, embracing the central Romantic ideals of beauty and art and the Romantic emphasis on narrative literature (instead of abstract theory) as a mode of understanding life, science fiction can be viewed as art as much as scientific and technological extrapolation.

Given its diverse roots, science fiction is highly pluralistic, with different writers emphasizing different perspectives. It tells many stories – from many points of view – with many different styles – about all aspects of the future. It has gone beyond the monolithic visions of the Enlightenment. It is Postmodern, interdisciplinary, and frequently counter-culture.

Science fiction is inter-disciplinary. Because it has both Romantic and scientific-technological roots, it pulls together the arts and humanities with science and technology. Since it is mythic, cosmic, personalized, and often concerned with such issues as the meaning of life and the good life, it brings together the secular-scientific with the religious-spiritual. Since science fiction increasingly has moved beyond simple extrapolations on science and technology in the future and brought into its arena concerns with the future such as the human mind, human society, culture, values, ecology and the environment, it draws upon all areas of human inquiry and study. Because it takes all these different dimensions of reality and integrates them into stories and scenarios, it is truly interdisciplinary, examining how technology, the environment, society, values, and the psyche all interact with each other.

Science fiction stimulates multiple dimensions of thought, exercising the critical and rational intellect and stretching the speculative and creative imagination. Science fiction can draw the reader into critical reflection on contemporary trends and where these trends could lead. One's intellect and thinking capacities can be challenged and stretched through the scientific, technological, and philosophical speculations in science fiction, for example, as in the high-powered cosmic cogitations of Stapledon and Baxter. Science fiction

expands one's imagination by engaging in "possibility thinking." Diverse worlds and innumerable strange realities are imagined in science fiction. Multi-faceted highly realistic scenario-building frequently occurs in science fiction. Future scenarios involving technologies, ecologies, geologies, economies, societies, governments, habitations, psychologies, and ethical norms and values are described and pulled together into cognitively compelling, detailed worlds.

Science fiction not only predicts the future but influences it. Science fiction describes the future in great sensory and descriptive detail, and has a strong emotional impact on the reader. The future is presented in personalized terms, with memorable and identifiable characters possessing various archetypal qualities. Hence, such characters, their challenges, and their exploits often inspire the reader into action or dramatic changes in thinking.

Science fiction generates a holistic experience of the future, impacting all dimensions of human psychology. It combines the abstract and the personal – it is a universe of ideas and individual characters. It unites cognition and emotion. It creates a virtual perceptual experience of the future since it creates such detailed and descriptive visions of possible future realities. It gets a person thinking about the future, feeling its pathos, and at times motivating the individual into changes in behavior and lifestyle. Because it both critiques and extols different modern trends, and often has morals to its stories, it addresses human values and ethics.

In general, science fiction possesses a set of complementary functions and powers. Often it unites apparent opposites. It is secular-scientific and mythic – Romantic; it is both rational and emotional; it combines the strengths of religious inspiration with rational understanding. Science fiction can be seen as both "thought experiments" and artistic visions. There is a personalized dimension to science fiction, but equally it can be filled with scientific theory, technological detail, and cosmic abstractions. While it tries to predict and understand the future, it also attempts to inspire, entertain, terrify, and mesmerize. It functions both as meaningful drama and literature and futuristic extrapolation. Science fiction can actually influence the future and not simply anticipate it. It is high escapism, as well as highly reflective and often critical of contemporary times. Science fiction extols the promise of the future, yet is filled with warnings, fears, and apprehensions about tomorrow as well. It shares similarities with ancient fantasy and mythology, yet it is also a creation of the modern world; it ties the past and the future together. As the mythology of the future, science fiction creates the dreams the world of tomorrow will be made of.

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- <sup>22</sup> Disch, Thomas, 1998, Pages 61 - 69; Wagar, W. Warren, 2004, Pages 67 – 70, 135 – 147, 176 - 182.
- <sup>23</sup> Disch, Thomas, 1998, Pages 62 – 63.
- <sup>24</sup> Wagar, W. Warren, 2004, Chapters 1 and 2.
- <sup>25</sup> For example, In his last book, *Mind at the End of its Tether*, Wells states, in regards to the future of humanity, "The stars in their courses have turned against him and he has to give place to some other animal better adapted to face the fate that closes in more and more swiftly upon mankind." In another earlier passage in the book, he puts it even more succinctly, "The writer is convinced that there is no way out or round or through the impasse. It is the end." Wagar, W. Warren, 2004, Pages 272 – 273.
- <sup>26</sup> Wagar, W. Warren, 2004, Pages 46 – 76; Wells, H. G., 1895 – 1934.
- <sup>27</sup> Wagar, W. Warren, 2004, Chapters 5, 6, 10, and 11.
- <sup>28</sup> Wagar, W. Warren, 2004, Chapter 11.
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- <sup>30</sup> Clute, John, 1995, Pages 42 – 45.
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