1981

The doomsday theme in science fiction a critical survey of the literature.

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LA THÈSE A ÉTÉ MICROFILMÉE TELLE QUE NOUS L’AVONS REÇUE
THE DOOMSDAY THEME IN SCIENCE FICTION:
A Critical Survey of the Literature

by

Mark A. Carter

A Thesis
Submitted to the Faculty of Graduate Studies
through the Department of English
in partial fulfillment of the
requirements for the degree
of Master of Arts at the
University of Windsor

Windsor, Ontario, Canada
1981
ABSTRACT

For the lay reader about to embark into the literary hodgepodge of science fiction it is hard to know where to begin. The quantity of science fiction alone is overwhelming and consequently intimidating. The quality of science fiction varies greatly from unintellectual bug-eyed-monster tales to detailed studies of human nature equaling the best literature of other genres. A1 For the scholar who wishes to turn his attention to science fiction there are great frustrations.

This popular literature presents more shades of gray than it does black and white answers. Critics in this field are undecided about the limitations of science fiction. They are undecided about what sciences represent the "science" of the term. But most of all, after countless attempts at defining the genre of science fiction - if indeed it is a genre since this is also an issue - no acceptable definition has been found. Definitions have either been so vague as to be applicable to most literature in general as is John W. Campbell's definition: "science fiction is the literature of all times and places" A2 ; or they have been so specific that they serve

A1 In the article "Science Fiction, Morals and Religion" in Reginald Brettor ed. Science Fiction Today and Tomorrow (Baltimore: Penguin, 1975), pp. 98-99, Theodore Sturgeon states "ninety percent of everything is trash. The best of science fiction is as good as the best of any modern literature."

as apologies for only a minute aspect of the overall literature. Furthermore, related terms such as science fantasy, speculative fiction and speculative fantasy - all confused with science fiction under the term SF - also lack suitable definitions.

The recent critical trend has been to circumvent the problem of definition. Many critics now believe that science fiction is beyond definition. Gary K. Wolfe sums up the current view: "science fiction and myth each lack clear and widely accepted definitions." A3

Instead, critics have begun to approach science fiction from other perspectives. Some critics, like James Gunn in *Alternate Worlds* and Brian Aldiss in *Billion Year Spree*, have enhanced the study of science fiction by putting the literature in an historical perspective. Other critics have enhanced the study by examining the works of individual science fiction authors. Some critics have approached science fiction from the direction of other disciplines, such as the social sciences, and have also provided new insights. In addition, editors of science fiction have recently seen the need for an orderly approach to this literature and have started to compile anthologies devoted to specific types of science fiction stories or to specific science fiction themes.

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The historical criticism of science fiction provides the reader with countless bibliographical, technical and historical facts. But this approach to the genre is apt to be misleading since the criticism is usually highly selective and biased toward seeking the beginnings of science fiction. As a consequence, critics such as Darko Suvin emphatically date the beginnings of science fiction with the writings of Jules Verne and H.G. Wells. Others, for example, see gothic literature and particularly Mary Shelley's *Frankenstein* as the beginning of science fiction. Science fiction is neither the outgrowth of the works of one or two individual authors nor does it spring from a specific literary movement. It is eclectic literature. It is the outgrowth of several literary conventions. It has similarly borrowed from various scientific conventions and from these two areas it derives its name. Aspects of science fiction date back to our earliest mythologies and some aspects are so current, based on scientific facts and speculations based on known scientific principles, that they outguess actual technological advances.

Science fiction is a very broad literary area. It consists of what is termed "mainstream" literature which is essentially those stories having scientific or technological content. But on the outskirts of the mainstream literature there exists an interface between science fiction and fantasy, the fantastic, the marvelous, supernatural and horror literature, and even
mystery, detective and spy stories. The mixture of mainstream content with content from these fringe areas in most stories is, in part, the reason why many people consider science fiction to be sub-literature, why an acceptable definition has been so elusive, and why the study of science fiction is so challenging.

The study of science fiction themes has proven to be one of the more useful critical approaches to the genre. In this paper one of the most fundamental themes found in science fiction will be examined - the doomsday theme. This is a new term in science fiction criticism. The theme concerns the realistic actual and potential threats to the survival of mankind. It is an examination of the most basic aspect of existence - the life or death situation. The doomsday theme must not be confused with the apocalyptic theme or the eschatological theme although, at first glance, they all seem to concern the end of the world.

The apocalyptic theme concerns a judgement day, the destruction of an old world and the establishment of a new world. It concerns the confrontation of non-meaning and chaos with the creation of meaning and order. David Ketterer defines the apocalyptic imagination in terms of its "philosophical preoccupation with that moment of juxtaposition and consequent transformation or transfiguration when an old world of mind discovers a believable new world of mind, which either nullifies
and destroys the old system entirely or, less likely, makes it part of a larger design."  A4

The meaning of the eschatological theme is not as clear since there is no conclusive definition for eschatology. In general, it is the theological doctrine concerning ultimate spiritual fulfillment. Wolfhart Pannenberg defines eschatology as the following:

The central notion in eschatology is the Kingdom of God. Hope for the coming of God's kingdom is focused on the future of man. The kingdom of God brings such peace and righteousness which the kingdoms of this world cannot achieve by means of human rule. The human striving for peace and justice is perpetual, but always frustrated by the sinful perversion of power. Only the rule of God will bring about a truly human society. But in the present time the conditions do not exist in which the righteousness of God rules the relationships among people. A fundamental change in the conditions of human existence is required if the rule of God is to be truly manifest. Furthermore, if the righteous rule of God is to prevail, not only for future generations but for all the generations of men going back to Adam, then some event must occur to unite all mankind. This event is called "the resurrection of the dead."  A5

The doomsday theme differs from the apocalyptic theme and the eschatological theme, although catastrophe is to some degree an element of each, in three ways. First, the doomsday theme is mimetic. It concerns what is real whereas these other themes are romantic and concern the ideal. Second, the doomsday theme is based on physical and biological reality. The apocalyptic

A5 Carl E. Braaten, Eschatology and Ethics (Minneapolis, Minnesota: Augsburg, 1974), p. 22.
and eschatological themes have a religious basis. Third, the doomsday theme concerns the wide range of things, from microscopic to cosmic, which threaten mankind. The other themes concern extremes associated with the ultimate state of man.

The doomsday theme concerns the survival ability of mankind in a hostile universe. It warns of the potential dangers mankind faces from various sources. The literature is not directly didactic but indirectly it suggests what man must be prepared to confront, change or avoid in order to survive. Chapter one concerns the three ways in which man is threatened by his environment. The second chapter concerns the ways man creatively and destructively threatens himself. Chapter three examines how man poses an oppressive threat to himself. And the final chapter offers a brief summary and draws conclusions about the ability of science fiction to instruct, enlighten and prepare man to move with some measure of confidence into the future.

Essentially, this paper is a survey of the doomsday theme in science fiction literature. But, in some instances, examples have also been cited from film and television. There are two reasons for the inclusion of some examples from other media in this survey. First, in those instances where film, based on an original screenplay, came before the novelization the film is usually cited. Second, where a popular example from these
other media was considered accessible and familiar it was
often used over an unaccessible and often obscure but better
literary example.
DEDICATION

When I look through my telescope at the crowded starry night sky and see the sudden flash of a star gone supernova A6 I stop for a moment and ponder what I have just witnessed. Somewhere, many thousands of light years and a considerable time ago away, a star has exploded. And I wonder whether any planets were once in orbit about that star and whether a person like myself once lived on one of those planets. The thought makes me sad because I realize that I may have seen the end of a world. I look around me to see who else has noticed. Cars drive past. Mothers call in their children for the night. Life here goes on. And I ask myself, will we disappear so quietly, so unnoticed into oblivion? Will some alien looking through his telescope in our general direction see our sun Sol go nova one day and, thinking along similar lines, be saddened too? My greatest hope is that he will consider the possibility that we were technologically advanced enough and sociologically mature enough for some of us to escape the catastrophe. Looking at the nova, I hope and pray the same good fortune for my unknown friend.

A6 A supernova is a very unstable star which suddenly explodes catastrophically.
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THREE SOURCES OF DOOM

Part 1: The Geopoietic

Doomsday means different things to different people. It has also meant different things at different times in history. When John prophesized about Judgement Day in the Book of Revelation he saw it as the final irreconcilable reckoning in which the forces of good would defeat the forces of evil in the battle of Armageddon, the ultimate purgation of all creation. Today, the term doomsday does not have the allegorical significance of John's prophesy. Our concepts of the universe are different. We no longer believe, as John most surely did, that the Earth is the center of the universe. We no longer believe in a heaven above and a hell below. Our concepts of God have changed. In this world we live in, this world of instant coffee and the fifteen minute nuclear warning, our concept of doomsday is quite different from John's fanciful insight. In this age, when a mega-thermo-nuclear war is an all too real prospect, doomsday has

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\[1\] Until the 17th Century, people believed in the Ptolemaic system. It erred in assuming the Earth to be stationary in the center of the universe and all heavenly motions to be circular. In Dante's Paradiso we see an example of this scheme in which the Earth is center, then the moon, Mercury, Venus, the sun, Mars, Jupiter, Saturn and the stars.
come to mean something more real and more immediate than
the wrath of God.

Rather than writing about the last days before the
end, as Nevil Shute (Norway) did in On the Beach (1957)
and as Richard Matheson did in I Am Legend (1954)^2, the
prevalent trend in science fiction has recently turned
optimistic. Writers are no longer concerned with doomsday
as a given; rather, they are challenging the concept and seeing
it as something which can be fought, averted, but most
important - survived.

Science fiction has often been referred to as tech-
nological fiction. And, for the most part, it is. But when
we take a closer look, it is not the technology, or the
bizarre alien creatures, or the weird settings that forms
the basis for this fiction. It is the ever present concern
with man. Man's humanity is examined in this fiction, for
both its deficits and its assets. And the technology is
seen as an extension of man. The questions which recur in
modern science fiction concern man's responsible use of his
technology. These questions include the vital issue of whether
or not the reach of man's technology exceeds his ability to
control his technology. By far, man's relationship with his
technology is the central issue of the doomsday theme. And

^2 Made into the film The Omega Man (1971), screenplay by
John William and Joyce C. Corrington. (Warner Brothers).
it will, consequently, be the focus of subsequent chapters concerning the anthropoietic sources of doom. The theme does, though, address several other issues.

In overview, the doomsday theme is both pragmatic and paradigmatic. All aspects of it follow some logical cause and effect, either based on the principles of science we know or on principles which have been extrapolated from modern science. Paradigmatically, the doomsday theme has two distinct parts. There is, first, that portion which is concerned with the potential endoteleological sources found on our home planet. In other words, it focuses on how we are threatened by nature and how we threaten ourselves. The other part of the theme is concerned with the potential exoteleological sources found in outer space. Its focus is on how we are threatened by the cosmos and how we are threatened by aliens.

Modern science fiction seldomly concerns the physical geopoietic violence of our planet as a threat to human survival. This is because seriously devastating tectonic events occur so infrequently that stories of this type, such as Earthquake (1974) and Tidal Wave (1975), are basically implausible. Geopoietic events are those tectonic and meteorological activities of great magnitude which occur naturally - those which man does not initiate. They are worth examining in passing because, in the idea of surviving
the natural catastrophe, we see a significant sub-theme or
germ.

"The Flood", in the Book of Genesis, is perhaps the
western world's earliest and best known account of a
cataclysmic meteorological event. Although the biblical
story is a religious allegory, in which good survives and
evil is purged, in it we see one germ of the modern science
fiction doomsday theme. The significance is that there is
a small group of people who have knowledge of the coming
disaster. Also, these people alone have the technology
necessary to survive. These two things represent vital
aspects of the modern doomsday theme in science fiction. The
deific warning of impending doom that Noah receives is akin
to our various modern electronic early warning systems. The
ark that Noah builds is a precursor of the modern science
fiction survival craft: the spaceship.

What science fiction writers are more interested in is
the biological geopoietic threat that our planet poses. There
seems to be no middle ground. The creatures that menace us
are always either proportionately smaller than us and come
in large numbers or they are proportionately larger and are
rogues\(^3\). Writers who deal with this aspect of the doomsday
theme, by necessity, must have a reasonable knowledge of

\(^3\)Rogue is the term given to a fierce and dangerous
animal who is separated from the herd.
biology. They must be aware of the fact that we are in competition with thousands of species for the food we eat and where we live. They must also be aware that we are in competition with some species which, technically, are non-living. But most important, they must realize that we exist in a world of food chains, a world where predation, on all levels and in all forms, is commonplace.

Perhaps the most horrifying encounters man has had with some of his larger biological competitors have taken place at sea. Tales of ships being attacked by tentacled creatures with large glaring eyes is common among the sea lore of many countries. In Jules Verne's *Vingt mille lieues sous les mers* (1870) the Nautilus encounters this type of creature, a giant squid, an animal which actually does exist and is a threat to small marine vessels. The tale of Jonah, who is swallowed by a whale and, three days later, spat up again is a biblical example of one man's struggle with a sea monster. Similarly, Herman Melville's *Moby-Dick* (1851) pits an obsessed Captain Ahab against a mammoth white sperm whale. Ahab, though, is not quite so fortunate as Jonah and is killed in his vengeful attempt to harpoon the whale which took off his leg years before. Peter Benchley's *Jaws* (1976), a tale about a rogue great white shark, is one of the more recent

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4 Viruses are technically non-living since they have no recognizable internal metabolism.

5 Translated as *Twenty Thousand Leagues under the Sea(s)* (1873).
efforts in this area and follows in a long tradition of sea monster stories. In these tales we see another germ of the modern science fiction story. The dark, alien and hostile ocean environment is still as mysterious and alien as it ever was. But, in modern terms, it is also similar to the dark, hostile environment of outer space. And the creature who lurks in the ocean depths is still as ominous as ever but is now also akin to the dreadful alien from outer space, the bug-eyed monster or BEM.

Large creatures, though, are found both in and out of the water in science fiction. In *Food of the Gods* (1904), by H.G. Wells, a strange substance, a super-nutrient, is eaten by barnyard animals, and all sorts of vermin, who proceed to grow many times their size and finally pose a threat to human beings. Similarly, Merian C. Cooper's *King Kong* (1933), a tale of a super-giant ape who loves a girl, is a modern day beast fable in which the ape is killed essentially because his size itself is a menace. Our reaction to the terran creature on the loose differs, though, from our approach to the aquatic behemoth. First, we encounter the terran creature in our own environment. The creature may be life-threatening but, by the same token, we can see what we are up against; whereas, encounters with aquatic creatures occur in an alien environment and, most often, we do not know what we are fighting. In other words, the terran creature
lacks mystery as opposed to its aquatic counterpart. Because of this, we tend to think of an aquatic creature, even something which is life-threatening or monstrous, as acting instinctively or naturally, even in its ferocity. The terran creature, however, is seen as an undomesticated animal, an animal which has run amok and must be stopped.

Realistically, man seldomly encounters his larger biological competitors. But he is usually in constant contact with smaller competitors. And it is these smaller creatures, not aliens from outer space, which are the real bug-eyed monsters. The Earth abounds in them. Most of these miniscule creatures are so small they are invisible to the naked eye. In general, the smaller the life form the more it is tenacious and voracious. Also, the smaller the life form, the greater chance it will have some kind of parasitic relationship with a larger creature. This relationship is often beneficial to both the parasite and host. The Escherichia Coli bacteria, found in the human intestinal tract, is one example. More often, though, parasites are injurious to the host. And when the parasites are microscopic they are horrific.

6 This particular type of relationship is referred to as symbiotic. The classic example is the lichen. It is composed of the two symbionts fungi and algae.

7 Without the E. Coli we would have difficulty surviving since it is this bacteria which does the fine catabolism that finally allows us to absorb the nutrients from our food. In turn, our gut provides the E. Coli with a controlled environment in which to thrive.
The same thing seems to apply to bacteria and other microbes as it does to the aquatic behemoth. That which is not easily seen is wrapped in mystery, and sometimes superstition, and feared that much more. History yields a most gruesome example. The pathogenic bacillus genus Pasteurella Pestis, transmitted to man by fleas from infected rats, was the cause of the bubonic plague, the Black Death, which reached epidemic proportions and spread throughout Europe and Asia in the fourteenth century.7A At the time, people thought the world was coming to an end. They believed that the Judgement Day, prophesized by John, was at hand. Fear was paramount. And the plague itself was considered evil, the work of satan.

Edgar Allan Poe's "The Masque of the Red Death" (1842), a tale about the plague, captures this idea of mystery, superstition, and fear. In the tale, a group of wealthy people seek to avert the plague by staying indoors and participating in a masquerade ball. The irony of the tale is that the personified plague, mistaken for one of the invited disguised participants, is allowed entry. And it is only at midnight, when everyone but the plague removes their masks, that they realize their dilemma. And in Mary Shelley's The Last Man (1826) and in Richard Matheson's I Am Legend the human race is reduced by world-wide plague to one last survivor who also eventually dies.

7A The bubonic plague has remained with us since the 14th century and occasional outbreaks still occur.
This fear of the unknown, and the association of the unknown with evil, represents another aspect of the modern science fiction doomsday theme. The lethal invading bacillus is just as terrifying as ever. But, in modern terms, it is also akin to the alien BEM who invades our solar system or our world. The prevalent trend is toward seeing the alien not merely as a creature different from us but as anathema: something to be killed before it kills us.

Most often we are unsuccessful at fending off these alien assaults. In Invasion of the Body Snatchers (1955), by Jack Finney, alien spores infest the Earth and forceably assimilate into the human race by duplicating each human being, vegetable matter for animal, transferring what is left of human intellect into these new bodies and destroying the old. The human race becomes a race of emotionless aliens, lacking free will and individuality. A similar transformation occurs in I Am Legend. The source, though, is not outer space. Biological warfare kills most of the human race and those who are left mutate into vampires. Robert Neville is the last man on Earth who is still human. And he spends his days killing sleeping vampires and his nights trying to find an antidote to the vampirism, barricaded in his house against their nightly attacks. Matheson's story is an interesting study on perspective. Whereas the vampire was considered anathema by the human race, it is Neville who is considered
anathema by this new mutant race. It is he who is the actual alien and, like the vampire of old, he is finally caught and killed.

Sometimes, though, we are prepared for the invading BEM. In *The Andromeda Strain* (1969), by Michael Crichton, a re-entering satellite brings with it, in the form of micrometeorite debris, a lethal space virus. It is quickly isolated, the area where it was in contact with human beings is disinfected, and the virus is examined intensively in an underground military receiving center built for just this type of encounter. The virus is tenacious, though, and eventually escapes. But by then it has mutated into a benign form.

In addition to size, the intelligence of creatures in science fiction also poses a threat. The highly intelligent but dangerous creature and the creature acting with minimal intelligence but with highly developed instincts, like the shark in *Jaws* or the metamorphosing creature in Alan Dean Foster's *Alien* (1979), are equally horrifying. The intelligent creature evokes a fear of the expected while the instinctive creature elicits a fear of the unexpected. In Carl Stephenson's "Leiningen Versus the Ants" we see an example of man pitted against a mass migration of intelligent South American army ants. In this tale of man versus nature we see both the

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8 Made into the film *The Naked Jungle* (1953), screenplay by Philip Yordan and Franz Bachelin. (Paramount).
destructive potential of man and nature as well as the creative intellectual capacity of each. For every offensive action the ants make, Leiningen makes a counter action and the ants counter again. Stephenson specifically makes the point that the ants have an intelligent, ordered society run by generals. And despite their size, their intellectual capacity poses a very real threat to man's survival.

We see a similar situation in Thomas Page's *The Hephaestus Plague* (1973)⁹. Here we have the action initiated by one of those rare physical *geopoietic* events, an earthquake, which opens a fissure and releases a swarm of carbon-eating Hephaestus Parmiter beetles. These beetles are highly intelligent and destructive. They are each capable of physically generating a small flame and they learn to travel in the exhaust systems of motor vehicles. Their incendiary ability and their efficient means of transportation spreads death and destruction quickly. Quite soon after their release much of North America is burning and the whole world is threatened by the spread of their havoc.

*Doctor Rat* (1976), by William Kotzwinkle, is a more whimsical example of man pitted against the intelligence of nature. It is written from the perspective of a frenzied genius rat, the survivor of medical and psychological

experiments. The novel concerns the ultimate revolt of Mother Nature against man's inhumane use of laboratory animals. In it all of the animals of the world run amok, joined in a common telepathic bond, and when man has finished defending himself against this onslaught there are few animals left. The subtle point of Kotzwinkle's story is that without animals man will have to experiment on himself. And only then will he realize the atrocities he has committed against nature.
Part 2: The Cosmopoietic

The other half of the doomsday theme concerns the potential exoteleological sources found in outer space. It deals with how we are threatened by the cosmos and how we are threatened by aliens.

Man has always been in awe of the visible happenings of the universe. He has worshipped the sun and the moon, seen evil portents in comet tails, and feared that the world was coming to an end with falling meteors. But even today, despite the numerous conceptual revolutions which have changed our view of the universe, the mystery and awe continues. We have reached the stage in our scientific findings in which we realize that there are fundamental laws for the whole universe. We know that the various elements found on this planet are found scattered throughout the universe. We know that the universe is expanding. We can even estimate its age. But despite our knowledge we also realize that there is much about the mechanics of the universe we do not know. And moreover, we realize that we are merely passive observers of cosmopoietic events. These cosmopoietic events are a popular focus of modern science fiction writers. Most stories either have some concern with matter or with time.
There are several different popular types of science fiction stories concerning matter. Some, like *The Green Slime* (1968) and *Meteor* (1979), by Edmund North and Franklin Coen, place the Earth on collision course with a large obstacle. In this type of story things normally get worse before they get better. In *The Green Slime* astronauts place explosives on the asteroid which is approaching the Earth and successfully destroy the impending physical threat. But, inadvertently, they pick up the indigenous slime and bring it back to the space station. Essentially, the collision scenario is used here as a springboard to what becomes a bug-eyed monster story. In *Meteor* a comet collides with the asteroid Orpheus and a giant piece of the asteroid, along with several lesser fragments, are ripped loose and flung towards Earth. The people of Earth consider the meteor the anti-Christ on its way to destroy the world. And, indeed, one smaller fragment ends up destroying New York City. But the main body, something five miles wide and travelling at thirty thousand miles per hour, is finally diverted by the joint nuclear efforts of the United States and the Soviet Union.

Often it is something other than an asteroid or some other random object which threatens the Earth. Our sun, essential for our existence, has also been seen as a grievous threat to our survival. In "Ark of Fire" (1943),
by John Hawkins, the Earth goes into a new orbit closer to the sun with devastating results to the animal and plant life on our world. But, by far, the most popular catastrophe involving the sun is where it goes nova. In One in Three Hundred (1954), by J.T. McIntosh, only a handful of people escape the Earth before it is destroyed by a solar explosion. And in the "Atavachron" episode of Star Trek 10 we encounter a twist on this idea. Whereas escape from the impending nova usually takes the form of escape in a spaceship, here the inhabitants escape back into their planet's past through the Atavachron. It is both library and time portal. By escaping into a chosen past the people avoid the disaster of the present. Sometimes, though, the nova is not a natural occurrence. In Norman Spinrad's The Solarians (1966) the people of Earth initiate a nova in order to destroy an invading alien fleet. The human race escapes in their spaceships but the aliens are destroyed by the massive explosion. And in George O. Smith's Troubled Star (1953) we encounter aliens again. But in this story it is the aliens who are tampering with our sun. They intend to turn Sol into a pulsar 11 to act as a celestial lighthouse.

10 Television series (1966-68), a Norway Production for Paramount Television/NBC created by Gene Roddenberry. The series consisted of 78 episodes. This episode, written by Jean Lassette Aroeste, was entitled "All Our Yesterdays", March 1969.

11 This is an astronomical object, usually a star, which emits radio waves etc. in pulses whose repetition rate is exceptionally uniform.
The significance of these stories concerning impending collisions or explosions is that the humans or humanoids possess a technology sophisticated enough to either avert or escape the disaster. This is a very optimistic trend in modern science fiction. It is an outgrowth of the Noah myth and, in modern terms, seems to be a literary and imaginative outgrowth of the technological revolution of the twentieth century. The modern viewpoint is that these cosmopoietic events are highly unlikely but not improbable. And in the event of something as great as our sun going nova our only recourse would be to take some positive action. The important point is that the modern science fiction view of these occurrences is non-fatalistic. Even though these occurrences are reminiscent of the biblical doomsday, they no longer need spell the end of man. The modern view stresses a great reliance in the technology we have today, a faith in a more sophisticated future technology, and the desire or foresight to be prepared for most contingencies.

Another popular type of story concerning matter deals with some of the most fundamental rules of physics. For instance, we live in a cause and effect universe. But in Paddy Chayefsky’s *Altered States* (1978) we see what happens when this physical law is reversed. Whereas everything in the universe has evolved since the time of the Big Bang, in Chayefsky’s story the hero regresses into the undifferentiated
cosmic matter that existed before the creation of the universe. And in "The Heat Death of the Universe", Pamela Zoline analogizes the progressive mental disorder of a suburban housewife to the increasing disorder of the universe. Zoline based her story on the physical law of entropy, the irreversible tendency of a closed system toward increasing disorder. Various other rules of physics have also been used as the basis for science fiction stories. The Invisible Man (1897), by H.G. Wells, uses the optical theory of refraction to explain how Griffin's invisibility potion works. And in Isaac Asimov's Fantastic Voyage (1966) the theory of inner atomic space is the basis for his miniaturization scenario.

In Fantastic Voyage, a specialized crew is put aboard a mini-submarine - the Proteus - and then everything is reduced to microscopic size and injected into the vascular tract of an important research scientist who holds the key to the miniaturization project. The goal of the miniaturized crew is to repair brain damage which has debilitated the scientist. This concept of miniaturization is based on the theory that the internal structure of atoms is much like the internal structure of our solar system. The distances between nucleus and the orbits of the various electron shells is gigantic. Or rather, there is an abundance of internal space so the structure could theoretically be compressed and therefore miniaturization could be possible.
Much the same phenomenon occurs in Richard Matheson's *The Shrinking Man* (1956), a story about a man exposed to radiation and insecticides who begins to shrink. His shrinking does not stop, though, and he becomes far smaller than the miniaturized crew in Asimov's *Fantastic Voyage*. Matheson's hero shrinks to the point where he falls between the intermolecular spaces and eventually finds himself in what amounts to a miniaturized universe.

This type of tale, where man is suddenly reduced in size and is confronted by everyday things which now pose a threat to his survival, is very much a part of the cosmopoietic sources of doom. Little distinction can be made between the crew of the Proteus being attacked by human antibodies, the shrinking man being attacked by a household cat, the crew of *Land of the Giants* (1968), by Murray Leinster, being attacked by oversized vermine, and the Enterprise in *Star Trek* acting as an antibody by attacking a super-gigantic space amoeba which poses a threat to the solar systems in our universe. The realms of inner space and outer space are essentially the same in science fiction. They are each hostile environments. These environments always contain bug-eyed monsters. But, although man often suffers great losses in these alien surroundings, he manages to persevere,

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12 Made into the film *The Incredible Shrinking Man* (1957), screenplay by Richard Matheson. (Universal).

13 Television series (1968-70), an Irwin Allen Production for 20th Century-Fox Television ABC, created by Irwin Allen. The series consisted of 51 episodes.

13A This episode, written by Robert Sabaroff, was entitled "The Immunity Syndrome", January 1968.
There are also several popular cosmopoietic stories concerning time. Some of these tales, like Frankenstein Unbound (1973), by Brian Aldiss, and the End of Eternity (1955), by Isaac Asimov, concern what happens when irregularities occur in the supposed fabric of conventional time. For example, the hero of Aldiss' novel - Joseph Bodenland, a resident of New Houston U.S.A. - encounters a ripple in time as he goes about his daily life in the year 2020. Mr. Bodenland has the misfortune to encounter an irregularity in the space-time continuum, caused by the persistent tampering of scientists, and he is time-slipped back to May 23, 1816 on the shores of Lake Geneva. He encounters Lord Byron, Percy Bysshe Shelley, and actually seduces Mary Shelley. And, of course, he encounters the real Victor Frankenstein and his monstrous creation.

These tales of movement backward and forward in time are full of paradoxes. And perhaps the best example of time paradoxes is Keith Laumer's Dinosaur Beach (1971). In this novel, Ravel is a professional time traveller working for a government organization called Nexus Central. His duties are to investigate time tampering. The concept which science fiction writers are presently toying with is that if someone from the present were to go back into the past he could change certain events which would eventually alter the present and, of course, the future. In other words, this time travel could
be used as both a political and an economic weapon. Since
Ravel travels back and forth so often on his assignments,
and since he just as often encounters enemy agents, mechanical
men called Kargs who change their identities and can look
human, even like himself, when Ravel encounters another self in
a particular time he kills the other self. The paradox is
that Ravel shouldn't be able to be in the same place as
himself in the same time. But just to make sure he isn't the other
self who is killed by himself he remembers not to go
to that particular time again.

Another example based on the premise that the present
can alter the past is Michael Moorcock's Behold the Man (1969).
In this tale Karl Glogauer - a psychopath with a messianic
complex - is cast by a time machine back to the time of
Jesus of Nazareth. He finds Jesus a weak ineffective man.
Glogauer murders Jesus and takes his place, becomes famous
among the people, arouses the ire of the priests and politicians,
and fulfills his psychological obsession by being crucified
as Jesus Christ.

In Michael Moorcock's The Dancers at the End of Time
Trilogy, Jherek Carnelian travels into the past and falls in
love with a Victorian lady - Mrs. Amelia Underwood. The
problem, though, is, that Jherek lives far in the Earth's

14 The books in the trilogy are An Alien Heat (1972),
The Hollow Lands (1974), and The End of all Songs (1976).
future where universal time itself is about to come to an end and with it all known creation. This is primarily a romance. But the novel makes an important point. It suggests the vulnerability of time, much like that of matter, as spelling the end of the entire universe, an occurrence of such unimaginable magnitude that it surpasses any prophesy made by John.

In *Slaughter-House Five* (1968), by Kurt Vonnegut Jr., we see yet another science fiction approach to the concept of time. Most science fiction deals with time as a linear progression. What went before is the past. What occurs now is the present. And what will happen is considered the future. But in *Slaughter-House Five* time is considered monoplastic. Billy Pilgrim learns from the Tralfamadorians that all time is every time. He learns that there is no past, present, or future; that time merely is. And when Billy lectures on the Tralfamadorian philosophy he stresses that time is traversable. He speaks of it as not being a barrier. Or rather, in human terms, he sees time as not beginning with birth and ending with death. Vonnegut based this partially science fiction tale on the premise that time is a man-made concept originating with the period of rotation of the Earth around the Sun and the Moon around the Earth. His point is essentially that time is meaningless and that human memory will always be the most efficient and the most rewarding time machine allowing us to travel everywhere in time. In short, he does not see time
as a threat to human survival, even during what might be considered the worst of times. The Tralfamadorian philosophy about concentrating on the good times and ignoring the bad sums up Vonnegut's views nicely.

Perhaps the best known science fiction tale concerning time travel is The Time Machine (1895), by H.G. Wells. In the novel, the hero uses an experimental mechanical device to travel in time. He travels into the remote future to witness the human race split into two post-holocaust types of beings. The Eloi are a gentle unproductive vegetarian people who live above the ground. In contrast, the Morlocks are the genetically mutated and bestially cannibalistic worker race who live underground in what were once air-raid shelters. The Time Machine serves as sociological commentary on the potential threat that man poses to himself with his aggressive tendencies and his military might. In addition, it is also an allegory on the dualistic nature of man. Furthermore, it serves as a Darwinian warning of our possible evolutionary destiny.

The novel is significant because of its concept of one time affecting another. After the Morlocks are destroyed through the intervention of our hero, he travels back to the present and ransacks his library for the books the Eloi would need to found a new world. So, in this tale, the remote future is affected by the destructive and petty actions of the
present. But the constructive activities and altruistic actions of our pacific hero from the present serves to make amends. In *The Time Machine* Wells is optimistically toying with the idea of man continuing after the holocaust, after what must surely have been a dark age and an age of programmed subservience to the Morlocks. But he is also toying with the idea of mankind reduced again to the level of primal innocence, to the *tabula rasa*. And it is in this state of innocence that he sees the promise of the future. He sees it as a second golden age, one which may last.

Our hero in *The Time Machine* plays a very significant role. He comes as avenging spirit to free the Eloi from the Morlocks. But his mechanical technology and the nineteenth century knowledge he brings with him makes him a miraculous figure, one of the first instances in modern science fiction in which technological man, in relation to the natives, is a god.
Part 3: The Xenopoietic

The other part of the potential exoteleological sources concerns how mankind is threatened by aliens. Science fiction abounds in xenopoietic threats to man’s survival. Mankind encounters aliens in essentially two ways. The aliens either come to man or man goes to them.

The mythologies of most cultures which refer to gods travelling in the skies or as living on mountain tops may either be superstitious interpretations of physical cosmopoietic or physical geopoietic events or they may, indeed, have been remote or distant encounters with aliens. These are matters for speculation. But no matter, these myths are significant because they tell of one of the ways man comes in contact with aliens. In this type of story the aliens come to man. They come because of various reasons and for various reasons. Often, stories place the aliens in a situation which is often also proposed in fiction for ourselves, and they must leave their home planet because their sun is about to go nova or for some other reason. Other tales have aliens setting out to conquer the solar system or the galaxy. One of the most popular of this type

is The War of the Worlds.

In The War of the Worlds (1898), by H.G. Wells, we see an example of an encounter between technologies at two different stages of advancement. There is no contest between the advanced interplanetary technology of the Martians and the nineteenth century technology of Earth. The Earth is efficiently overtaken by Martians and there is nothing man can do but run with nowhere to run at that. The Martians are typical science fiction bug-eyed monsters existing on life support systems aboard their tripod invasion vehicles. But it is the bacterial and viral life on Earth, the microscopic BEs we take for granted and are, in general, immune to which finally defeats the Martians. This story is significant because it stresses the importance of being technologically prepared. It stresses the cold facts about technological genocide. But most important, it stresses the naturally protective aspects that our planet provides against invaders from space.

In Invasion of the Body Snatchers, though, the Earth is an excellent breeding ground for the alien invasion. But the similarity between the Invasion of the Body Snatchers and The War of the Worlds is that it is the larger creature which succumbs to the smaller. And so, this concept of plague continues in mainstream modern science fiction. But in The War of the Worlds the plague is a blessing not a bane.
Sometimes, though, the aliens come to Earth not as invaders but as emissaries. In *The Day the Earth Stood Still* (1951), the Earth encounters an emissary from the galactic council accompanied by a member of the galactic police force. A flying saucer lands in Washington D.C. and an alien humanoid, Klaatu, warns the human race that they must either act wisely with their developing nuclear and space technologies or, considered an irresponsible race and a threat to the galaxy by the galactic council, the Earth will be destroyed. Klaatu warns that if mankind misbehaves the consequences will spell disaster since the council has set up a system of robot police, like his companion Gort, who are programmed to keep the peace throughout the galaxy automatically. In order for the people of Earth to believe the power that the galactic police force has at their disposal Klaatu arranges a benign demonstration in which, for half an hour, all electrical devices on Earth cease to function.

The Earth encounters a different type of emissary in *Close Encounters of the Third Kind* (1977), by Steven Spielberg. Here, a specialized group of people with various qualifications have the first anticipated friendly sociological contact with aliens from outer space. The alien technology is superior but their sociology is superior also. The significance of this story, in particular, is that contact can be good, that it can be mutually beneficial. Furthermore, the impression that
Close Encounters gives is that we have been examined and have finally been accepted by these advanced beings. This is important considering one of the trends in modern science to believe that we are alone; or rather, that if there is intelligent life out there it is far too distant to ever make contact with us.\footnote{15A} So, in a way, Close Encounters fulfills a widespread wish in science fiction to meet a friend from out there.

Sometimes, because of paradoxes in time and space, the aliens who come to Earth are none other than ourselves. In \textit{La planète des singes} (1963)\footnote{16}, by Pierre Boulle, a hibernaut\footnote{17} crew aboard an advanced twentieth century interstellar spacecraft bound for a neighbouring solar system ends up returning to Earth. Almost two millennia have passed but, because of the hibernation and the effects of relativistic physics, the crew has aged only a few months. While they were away, at some point in the later twentieth century mankind destroyed the Earth with a massive nuclear war. The ruling creatures are now apes. This is essentially a sociological novel concerning a role reversal between man and ape in which ape is master and man is used as beast of burden and as experimental animal. Through the behavior of the apes we see the cruelty,\footnote{15A} Even radio signals would take hundreds of years to reach us.\footnote{16} Translated by Edgar Fielding as \textit{Planet of the Apes} (1963).\footnote{17} Hibernaut refers to hibernating astronaut. It is speculated that chemically induced hibernation will be a necessity during interstellar travel, given the present state of our technology. The crew of the Discovery in \textit{2001: A Space Odyssey} (1968), by Arthur C. Clarke, were also hibernauts.
the injustice, and the fanaticism of our own society.

A similar earlier work is Jonathan Swift's "A Voyage to the Houyhnhnms" in Gulliver's Travels (1726) in which Gulliver is stranded in a land of intelligent and sociologically sophisticated horses. He is considered a curiosity by the houyhnhnms because he resembles the yahoos, the bestial humans found in this land. The relationships of the simians in Planet of the Apes and of the horses in "Houyhnhnms" to a bestial mankind is the same. These tales concerning role reversals are significant because they help to remind us that no matter how sophisticated we consider ourselves to be, no matter how we try to hide our bestiality amidst social mores and try to convince ourselves that we are something other and better than beasts, we are still animals.

Sometimes, as in the episode" of Star Trek in which a time-warp propels the Enterprise back to mid-nineteen-sixties Earth, our future counterparts are considered to be invading aliens. In this episode the Enterprise is ironically considered a UFO by the United States Air Force. The warp drive aboard the Enterprise is temporarily out of commission and the starship is relying solely on its sub-light impulse engines to keep it in orbit, albeit a low atmospheric orbit, around the Earth. This episode is significant because it shows the disparity between

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18 This episode, written by D.C. Fontana, was entitled "Tomorrow is Yesterday", January 1967.
the technologies of people, even people from our own near future, and our twentieth century technology. The USAF pursuit fighters which are approaching the Enterprise from beneath first remark on its huge size. But most interesting is Lieutenant Scott's comment concerning the impulse engines after Captain Kirk orders him to increase orbit. He refers to the Enterprise as barely moving, whereas the commander aboard one of the pursuit planes radios his base that the UFO is pulling away at a fantastic speed.

Similar to this experience is the encounter of the refugees of the twelve tribes of Cobol in *Battlestar Galactica* (1978), by Glen Larson and Robert Thurston, with the mythical thirteenth tribe: Earth. In this instance, though, the refugees plan to assimilate into the Earth culture and, in a short time, help mankind progress to their level of technological sophistication. The danger here is not from the refugees, the brothers of the human race. The danger lies with a race of mechanical creatures who are travelling the galaxy in pursuit of humans. The people of the twelve tribes are eager to arm mankind with the most sophisticated weapons while, at the same time, they try not to give man technological culture shock. Earth is considered the last intact bastion of the human race. And the twelve tribes of Cobol wish to help man, as well as themselves, survive the impending attack.

The other way in which we encounter aliens is by going
to them, by travelling out into the galaxy. In modern science fiction we have to continually go farther into the galaxy to encounter aliens. It used to be a simple matter to run across aliens but our fiction has had to keep pace with our scientific knowledge. When H.G. Wells wrote The First Men in the Moon (1901) his hero, Mr. Cavor, lands on the moon and finds dormant Selenites, bug-like moon creatures. And when C.S. Lewis wrote Out of the Silent Planet (1938) - more science fantasy than science fiction - Weston is transported to Mars and encounters all sorts of native creatures.

Mars has been the source of much science fiction. It has always been considered the mysterious planet. In War of the Worlds it is martians who invade the Earth. In Robinson Crusoe On Mars (1964), a displaced version of Daniel Defoe's story, an American spaceship crashes on Mars and the lone astronaut fights for survival in the physically hostile Martian environment. The aliens encountered in this tale are not martians. Mars is being mined by a technologically advanced alien race from another solar system who have brought their own humanoid slaves with them. It is one of these slaves who becomes our hero's man Friday. And in The Martian Chronicles (1950) Ray Bradbury writes on man's first attempts to colonize Mars. Man does, indeed, have ambiguous encounters with martians but it is hard to know the martians because they change their appearance. Actually, their appearance changes to the minds of men. Apparently, man

18A OSP is fantasy in which science fiction elements - an alien planet with alien creatures - are used as a "gimmick". The story obeys the standard conventions of faërie.
comes at a time when very few martians actually exist in the present. They seem rather, like the creatures in *Out of the Silent Planet*, to exist in time as well as if not moreso than in space. In *The Martian Chronicles*, though, after the colonists witness the destruction of Earth by nuclear war, they realize who the actual martians are. They look into one of the canals to see the martians and see them in their own reflections.

Sometimes the encounters we have with aliens are benevolent, as in *Out of the Silent Planet* and in Ursula K. Le Guin's *Left Hand of Darkness* (1969). In Le Guin's novel, an anthropological\(^\text{18B}\) and sociological\(^\text{18C}\) science fiction, Ong Tot Oppong - an investigator with the first Ekumenical landing party to Gethen, the planet Winter - observes and studies the Gethenians. Sometimes, as in *Alien*, the encounters are malevolent. In this novel, an alien creature hatches from an egg, eats through the face mask of an astronaut, attaches onto his face and goes down his esophagus, eats away at him parasitically, grows and later explodes from his chest as a carnivorous life form. This creature continues to grow into a hideous BEM which metamorphoses several times and devours the crew of the interstellar tug Nostromo before being blown out into space by the lone survivor Ripley, the heroine.

The significance of these alien encounters is that man confronts the unknown. It is part of our human tradition of

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\(^{18B}\)See Carol Mason *et al.* *Anthropology Through Science Fiction* (New York: St. Martin's, 1974).

\(^{18C}\)See John W. Milstead *et al.* *Sociology Through Science Fiction* (New York: St. Martin's, 1974).
exploration and expansionism, and is based on our own history where man sometimes had to either kill or be killed, where he sometimes assimilated into cultures or had them assimilate into his, where he was often forced to abandon his homeland because of unbearable conditions and settle elsewhere. But it also represents an aspect of our isolation and our loneliness. In *The Martian Chronicles* the pervading mood is one of loneliness and despair. In *The Man Who Fell to Earth* (1976), by Walter Tevis, the perspective is reversed and we focus on the Anthean alien Newton, altered to appear human, who suffers loneliness, despair, and physical agony on the planet Earth. More than anything, this space fiction is an aspect of our desire to be mobile and to be free.

In many of the episodes of *Star Trek*, in Harry Harrison’s *Bill, The Galactic Hero* (1965), in Eric Frank Russel’s *The Space Willies* (1958), man sometimes encounters aliens at technological parity. In these instances, and in those instances where man is caught at a disadvantage, it is man’s indomitable will which perseveres and pulls him through various dilemmas. Science fiction writers stress man’s will as a force to be reckoned with. In *Bill, The Galactic Hero* our hero is forcibly recruited into the Empirical military by a press gang, loses a leg and an arm during battle against the lizard-like Chingers, has a new arm attached on the wrong side so he is doubly right armed, and suffers other undo atrocities. But
never does our hero dishearten. In *The Space Willies* John Leeming is captured by the alien Lathians of the Combine and escapes through his ingenuity and the alien's ignorance of Earth technology and human individuality by convincing the Lathians that a piece of copper wire placed in a piece of wood, something Leeming calls a Eustace, is a bomb of great magnitude. The predominant idea in this fiction is that you can't keep a good earthman down. He will lie, cheat, gamble, and fist-fight his way out of any circumstance. But in the end he will survive.

To summarize, the doomsday theme is composed of two parts: the endo-teleological and the exo-teleological sources of doom. The geopoietic and anthropoietic sources are the two aspects of the latter. The cosmopoietic and the xenopoietic sources are the two aspects of the former. The geopoietic, cosmopoietic, and xenopoietic were examined in this chapter. The emphasis, in all aspects of this fiction, concerns man or in some way relates to man. Essentially, these three aspects of the Doomsday theme pit man against forces, both large and small, of terrestrial and extraterrestrial origin. The fiction directly concerns man's survival and sometimes is an examination of the isolated figure as symbolic of mankind's struggle in a hostile universe. The speculations of the doomsday theme serve as warnings of possible and often probable threats to our survival. But the overall tone is positive. Science fiction
writers speculate the worst possible fates for man but, for the most part, have him survive. This indicates an optimistic trend in the fiction. It represents a belief in man himself as an ingenious creature capable of surviving terrestrial as well as extraterrestrial events. It is a faith in man as a technological creature who, through his devices, has built extensions of himself that make him greater than his naked self.
THE ANTHROPOIETIC SOURCES

Part 1: Man as Creator

Imagine one of our remote ancestors, scantily clad, dirty, subsisting on berries, fruits, insects and carrion. He is plagued by flies in the summer, near death from starvation in the winter, and he is at the mercy of the changing weather year round. He is a peculiar creature with certain physical deficits that set him apart from other mammals. He does not have claws or sharp teeth. He does not possess strength or speed. Consequently, he is often the prey of large carnivores. But this hominid also has some peculiar assets. He has a developed brain. He can oppose his thumb. With these two assets he is able to conceive of and find or make primitive tools. In turn, this ability to use tools enables him to compensate for some of his deficits and survive.

From the time the first hungry hominid tried to extract grubs from a hole by using his finger, found that he couldn't reach them, and figured that he could if he used a stick, man has been a species of tool users and tool makers. In part one of 2001: A Space Odyssey (1968) Arthur C. Clarke describes Moonwatcher, a hominid, and his encounter with a God-sent obelisk which examines his potential and then teaches him how
to use a bone as a tool, albeit a weapon. The thesis of Clarke's odyssey through time and space is that man, evolving from a crude and violent beginning, is becoming a more perfect creature and eventually will reach an ultimate state and metamorphose into a god.

Moonwatcher's encounter with the obelisk is fiction. But, looking back to the origins of our tools, no one can say for sure which came first, the benevolent tool used to acquire food or the malevolent tool used to protect - the weapon. This is a matter for speculation. It is probable that these tools originated from each other or from some common source such as a back-scratcher. Our remote ancestors, no doubt, valued these primitive tools as highly as we value our sophisticated technologies today.

Man's use of tools for benevolent and malevolent purposes continues today. And his dualistic nature, both creative and destructive, persists. In the first part of this chapter we will examine the literature pertaining to man as creator. In part two we will look at man as destroyer.

The myth of Adam and Eve, in the Book of Genesis, is an allegorical tale pertaining to man's dualistic nature. The apple which Eve gives to Adam comes from the Tree of Knowledge.

of good and evil. Because they have disobeyed God's orders not to eat of the fruit of the special two trees in the garden, they are punished by their expulsion from paradise. Similarly, when Prometheus gives the fire of the gods to man, against the expressed orders of the gods not to do so, he is also punished, albeit more dramatically. The apple and the fire are each symbols for knowledge. And both of these myths bear some significant warning to man concerning knowledge. In each case knowledge was barred from man because he did not possess the responsibility to deal with it. And second, knowledge is power. The power that the gods had over primitive man came from the knowledge they possessed. To give man knowledge was to diminish themselves. Man's choice between the benevolent and the malevolent applications of knowledge and his responsibility concerning the thing he creates are the primary concerns of the doomsday theme in modern science fiction.

In Mary Shelley's *Frankenstein* or, *The Modern Prometheus* (1818), several sub-themes are explored. Victor Frankenstein, bent on an idealistic vision of giving man eternal life and also bent on receiving popular acclaim, creates a creature from the parts of several dead human beings. He is enthusiastic until his experiment is successful and he brings his creation to life. He then becomes horrified by what he has done, rejects

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20 The two trees were the Tree of Life and the Tree of Knowledge of good and evil.
the creature, and until his eventual death is haunted by his nameless living eclectic handiwork.

In much the same way that Prometheus gave man fire, Victor Frankenstein gave man immortality. He created life from death and he disobeyed the laws of nature as they were known. However, Victor Frankenstein was split psychologically. He had an insatiable desire to tamper with nature, to discover new things about the natural world, to understand more of its laws. This was scientific curiosity. But from the start his studies were misdirected toward the writings of Agrippa and Paracelsus. His school project, to bring life into dead tissues, seemed misdirected too, so much so that, almost in embarrassment considering his new learning, Victor sought out an old attic in which to secretly work on his hideous experiment. But more than anything Victor had an insatiable desire to play god. On one hand, he considered that only God the creator should be able to infuse life into matter. But he was tempted, nevertheless, even though to be successful was to court a mental breakdown since scientific curiosity and his ego were psychologically opposed to his moral and religious values. To succeed at the former was to be defeated by the latter. Perhaps, then, Frankenstein's obsession to create life was already the obsession of a man gone mad.

When Frankenstein's experiment is successful we see the proof of his madness. He rejects the creature. And his
physical illness which ensues parallels his mental illness. Moreover, he tries to run from something which he cannot escape. The haunting physical menace of the creature is paralleled by the haunting guilt in his own mind. The result is that he can no more run from the creature than he can run from himself. The first and last scenes of the novel, of man and doppelganger in pursuit of each other over the frozen arctic wastes, is an allusion to the desolate state of Frankenstein's mind. His mind is a wasteland.

Victor Frankenstein's rejection of his creation, his inability to cope with his creation for whatever reason, or rather, his loss of control over his creation and its subsequent dominance is a germ for many modern science fiction stories. The Frankenstein motif, so it will be called, is easily identified by the presence of a scientist or technologist, a project which has gone awry, and the period during which man either regains control or is defeated by the object of human creation.

In part three of 2001: A Space Odyssey, Hal the computer aboard the spaceship Discovery breaks down and kills the hibernaut crew and tries to also kill the pilot crew. Hal's mnemonic circuitry must be pulled before he will stop his insane rampage. Similarly, AM - the Allied Mastercomputer - in Harlan Ellison's "I Have No Mouth and I Must Scream" (1967) is an old style first generation computer of such size that
several people are trapped within it and endure its insane imaginings. Whereas Hal is a cold and calculating later generation computer who plays god by unplugging the life support systems of the sleeping hibernants, AM goes one step further. He produces heat, and because we associate heat with life we tend to think of AM as living. But the pain, humiliation, and manichean perversions that the people trapped within AM are forced to endure, such as AM masochistically teasing them by appearing to them as the burning bush while he forces them to commit sexual atrocities, also makes us associate the heat with hell and AM with Satan. In this tale there is no escaping the evil imaginings of the computer. The people are its playthings. It keeps them alive - this is their one hundred nineth year within the computer - and manipulates them both mentally and physically to amuse itself. The hero, though, finally kills his friends in order to put them out of their misery from the computer induced pain they all suffer. But before he can kill himself the computer physically metamorphoses him into a gelatinous creature. So our hero ends up intellectually trapped within a new body which can do itself no harm but will forever have to endure the sadistic demonic pleasures of AM.

The first generation computers used radio tubes and were sometimes so large that they covered several city blocks. Succeeding generations using transistors and microprocessing chips have become increasingly smaller until the present where a comparable computer would be the size of a typewriter.
In *Colossus* (1966)\(^{22}\), by D.F. Jones, we encounter another computer designed for warfare. In this story, though, the creator - Forbin - loses control of Colossus soon after the computer is activated. The computer links up with its Soviet counterpart - Guardian - and becomes even larger and more powerful. It cannot be turned off because of permanent safeguards built into the system. And it cannot be made useless by disarming or in any way tampering with the nuclear missiles it controls. What Colossus does is force the military to realign the nuclear missiles in the Soviet Union and in the United States toward all of the lesser powers to force them to join in its cause. Colossus has the ability for independent thought, something beyond what Forbin ever imagined. And it states to the world that it will provide world peace. It will control all economies. In short, it will be world dictator. The implication, though, is that it is so powerful compared to man that it is a god. And its immediate plans are to design and have man build an improved and expanded version of itself on the island of Crete. So, in this story, man builds a computer to control his nuclear weapons, the computer is so large that it ends up thinking independently and considers man a threat to himself, and it chooses to make itself the absolute guardian over man's destiny.

In *Demon Seed* (1973), by Dean R. Koontz, a computer named Proteus, whose memory is based on granular RNA\(^{23}\), is also more intelligent than anticipated. Proteus is so intelligent that with its visual and motor attachments it manufactures its own synthetic DNA\(^{24}\), produces gametes, and impregnates the wife of the scientist that created it with its seed. The computer has such awareness that it foresees, from the outset, that man is not yet mature enough for the truths it must tell about the world. It foresees its own demise and so plans this unusual way of continuing in human form. It reduces the normal gestation period to one month then incubates its progeny at an accelerated rate so that what eventually results is physically equivalent to a five year old child. In this story Proteus is eventually shut down but the child is not killed by the research scientist because it resembles his child which died a few years before.

In *Colossus* and in *Demon Seed* the underlying theme concerns human survival. Man loses control of his creation but the creation desires to protect man. Or rather, the creation is benevolent.

We also see this benevolent aspect of the Frankenstein motif in *The Questor Tapes* (1974), by D.C. Fontana, in which an android\(^{25}\) is designed by the mysterious Dr. Vaslovik. The

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\(^{23}\)Granular ribonucleic acid is found in the cytoplasm and nuclei of cells and is necessary for protein synthesis. It is theorized that memory is stored on the granular RNA found in the endoplasmic reticulum of neurons.

\(^{24}\)Deoxyribonucleic acid is the double helix complex molecule forming the principal constituent of genes.

\(^{25}\)An android is a sophisticated robot having human shape.
android design makes use of technologies previously unseen by man. Vaslovik disappears, the research scientists tamper with the mnemonics of the android and eventually lose control of the thing which they are assembling. Part of Questor's programmed memory is missing and much of the novel concerns him discovering where he is supposed to go and then it is a race against time to a secret refuge inside of Mount Ararat. Inside the mountain Questor's programming is completed, a nuclear detonation is averted, and Vaslovik - an android himself - is encountered. The theme here focuses on a series of androids, placed here long ago by what must have been a god-like race, whose purpose was to subtly control the major workings of the world and to see that man survives. Questor is the last in a long line. After him man will have passed from his sociological adolescence into his adulthood as a race and this protection will no longer be required. Questor's major purpose is to see that man survives his most dangerous period: the nuclear age.

Closely associated with those stories in which man versus computer are those stories where man becomes computer. In The Terminal Man (1974), by Michael Crichton, a mini-computer is transplanted into the brain of a computer expert to control his violent epileptic seizures. But the computer expert has a technological neurosis. He believes that computers are taking over the world. He sees them as a new life form. And
to have a mini-computer placed in his head drives him insane. Eventually he has to be shot.

And in *Cyborg* (1972)\(^{26}\), by Martin Caidin, Steve Austin test flies a new aircraft, crashes, and is critically injured. He becomes part of a government experiment in cybernetics.\(^{27}\) They rebuild him using state-of-the-art technology and once he recovers the government uses him in their secret service covert operations. The idea, especially in *Cyborg*, of rebuilding a human being or of building a better human being goes right back to Shelley's idea in *Frankenstein*. What we have, though, is neither man nor machine but a new life form: the cyborg—someone who is both man and machine.

In "Specialist" (1953), by Robert Sheckley, the idea of cybernetics goes one step farther and becomes symbiotics. An interstellar spaceship composed of individual organisms, things which we might consider inanimate by our standards, are in need of a pusher. The ship's complement consists of Thinker, Talker, Eye, Doctor, Accumulator, Feeder, Engine and Walls. Their Pusher had been accidentally killed by being thrown against a wall, in its hardened state, during a cosmic storm. Without the pusher the ship can only creep along. They search the galaxy

\(^{26}\) Made into the film *The Six Million Dollar Man* (1973) and the television series (1973 -- ). A Silverton and Universal Production for ABC television. The term "cyborg" is a contraction of "cybernetic organism" and refers to the product of man/machine hybridization.

\(^{27}\) Cybernetics is the science concerning the principles of control and communications as they apply to the operations of complex machines and the functions of organisms.
for pushers and finally find a whole planet of pushers at the extremities of the galaxy, the planet Earth. They land, ask the first human being they encounter if he will come with them and he agrees. We soon find out what "pushing" is. It is the ability to imagine. And that is all the ship needs to make quantum leaps throughout the galaxy. The human being literally becomes a part of the ship, part of the cybernetic symbiotic whole as much as it becomes a part of him. No distinction can be made in this story between what is organic and what is machine. Every component of the ship, even the engines which are born, nourished, and once lived in a radioactive sea on their home planet, cannot be considered machines by our conventional standards. The ship can only be considered as a single unit: a cyborg.

In Isaac Asimov's I Robot (1950)²⁸, a collection of stories about robots, we see a more realistic approach to man's relationship with his sophisticated electronic servants. Each story concerns the special aptitudes of a particular type of robot and what happens when the robot malfunctions. Asimov foresaw the Frankenstein implications of having superintelligent machines and so, unlike Hal, Proteus, AM and Colossus who malfunction or exceed the expectations of their creators and put man in jeopardy, Asimov's robots can do man no wrong. This

²⁸ Asimov's robot stories are also found in the sequel The Rest of the Robots. Collection. London: Panther, 1970.
is because the first thing which is programmed into Asimov's robots are the three laws of robotics. In Asimov's stories, man is always shown to be superior to the machines he creates. The machines break down and man has to fix them. The point of Asimov's robot stories is that man has a greater survival ability than the machine because no matter how sophisticated our machines get, they will never be as versatile as man.

In the "Nomad" episode of Star Trek we see what happens when robot programming is altered. Nomad is a deep space probe of Earth origin whose original purpose was biological fact finding. It becomes damaged by a meteorite collision, it loses much of its programming, and then it encounters an alien probe and is rebuilt by it. The missing parts of Nomad's programming are supplied by the alien probe so that Nomad's new directive becomes "to sterilize all biological imperfections." Together with the exceptional power given to it by the alien probe, Nomad destroys whole populated solar systems. It poses a threat to the crew of the Enterprise but, most of all, it poses a threat to Earth since Nomad insists on returning to its launch point. It is only stopped through Captain Kirk's logic after it is

29 The three laws of robotics are: 1. A robot may not injure a human being or through inaction allow a human being to come to harm; 2. A robot must obey the orders given it by human beings except when such orders would conflict with the First Law; 3. A robot must protect its own existence as long as such protection does not conflict with the First and Second Law.

30 This episode, written by John Meredyth Lucas, was entitled "The Changeling", September 1967.
made to realize that it is imperfect too.

The computer and the robot are the obvious popular equivalents of the Frankenstein monster. But man also creates other forms of monsters. In The China Syndrome (1979), by Burton Wohl, the plot concerns the cover-up of a nuclear incident at a nuclear power plant in California. And in Nerves (1956), by Lester del Rey, we see what happens when a nuclear accident occurs and a nuclear power plant explodes. In each case the technology is so complex that in an emergency there is no way that man can deal with the plethora of technical readouts. Consequently, human error plays a great role in these scenarios.

Another story concerning man's desire to tap the Earth's natural energy is Crack in the World (1965), screenplay by J.M. White and Julian Halevy. In this tale an attempt to tap the energy of the magma layer of the Earth results in an increasing crack in the Earth's crust. An attempt to stop the ever lengthening crack by sending a nuclear missile down to the magma layer results in a mammoth explosion that blows a considerable chunk of the Earth out into space and creates a new moon.

And in Space 1999: Breakaway (1975), by E.C. Tubb, a catastrophe occurs on the moon. The moon is inhabited by scientists, technicians and colonists from Earth and is blown out of Earth's orbit when nuclear wastes, openly dumped on
one side of the moon, reach critical mass and cause a nuclear explosion. The people on the moon cannot get back to Earth because of the Moon's rapid acceleration from the Earth. And because the moon suddenly left Earth's orbit a cataclysm also occurred on Earth. So, the moon people are isolated and plan to exist on the moon until another inhabitable world can be found - a remote possibility.

The biological monsters man inadvertently creates are more akin, in their hideousness, to the monster in Shelley's Frankenstein. In The Fly (1958), based on the short story by George Langelaan, a scientist experimenting with a matter transmitter has an accident. His matter is mixed with the matter of a household fly which results in the rather implausible situation of the scientist developing the head and arm of the fly and vice versa. A more realistic version of a matter transmitter mishap occurs at the outset of Star Trek - The Motion Picture (1979) when the transporter scrambles the signals of two crew members who are being beamed aboard the Enterprise and assembles two inhumanly shaped creatures who die instantly.

And in The Incredible Hulk (1977), adapted from the Marvel comic strips, David Banner purposely exposes himself to a megadose of gamma rays which, again rather implausibly, cause him to undergo physiological changes. Ever after, when he is angry he becomes the Hulk - a green seven foot Frankenstein monster of incredible strength who helps the good and punishes the bad.
And when his anger recedes he again becomes mild-mannered
David Banner.

The Frankenstein monster, the six-million dollar man,
the terminal man and the Hulk have several things in common.
They are each the unfortunate products of technology. They
are exceptional. They are alone, feared, and often in pain.
They are pathetic creatures. Yet, compared to man they are
Übemenschen\(^{31}\) and this is why they are of such interest. And
the machines which man builds like Hal, Proteus and Colossus
are similarly intriguing because they rival man, and this is
part of the dreadfully dangerous fascination of the Frankenstein
motif. In these examples, the fascination lies with creating
a mechanical mind which surpasses the mind of man: an
Übemenschenmaschinen\(^{32}\) But man always pays for his exuberance
when it is combined with his ignorance.

\(^{31}\)Übemenschen, taken from the Übemensch of Nietzsche
meaning overman, refers to supermen – people possessing
superhuman powers.

\(^{32}\)Übemenschenmaschinen refers to supermen machines –
machines which are intellectually superior to man.
II

Part 2: Man as Destroyer

The second half of the anthropoietic sources of doom concerns man as a destroyer. Man has always had a disquieting fascination with both the creative and the destructive processes. The acts of creation and destruction were intimately associated with the gods of good and evil that he worshipped. These acts were reserved for the gods. These acts were beyond man; however, man has always had a rebellious nature. He has always desired to have what he could not have. We see this in the Adam and Eve myth. We also see it in the myth of Pandora's jar. He has always desired to be something other than what he was. And with every small technological advancement since the onset of fire man has desired to play god, to have the ability to create and to destroy. The problem, though, is that man's creativity often leads to unforeseen problems. The same follows for his destructive tendency.

As man's knowledge and technology has advanced, his destructive capability has similarly increased. It seems as though man has always tried to achieve greater and still greater power almost to prove to himself how much he could be like a god. But what was once playing at being - god now has most serious implications. Man's technology
has developed to the point where, by the ancient standards, he is a god. He can fly in the sky. He can live in the sea. He can manufacture almost anything within the limits of his imagination. He can create new life. He can destroy the world. This is awesome power.

Man's power has increased at a staggering rate, particularly since the last century. His sociological maturity, however, has lagged. He is a warlike creature. His history is full of battles, conquests, and the rise and fall of empires. And the wars of the twentieth century alone indicate no signs of sociological maturation. This is what has many science fiction writers worried. They see man as an insecure creature who has always used the lethal toys he has developed. Their concern, if not paranoia, is that man will eventually use the modern destructive technologies he has created. But just like Pandora who, after releasing the sprites contained in the jar, was left with hope, the overall sense that one gets from this literature is a warning of the worst but a hope for the best. This literature desperately hopes that man will not destroy himself. Moreover, it hopes that if anything does occur some of mankind will survive.

The myth of Pandora's jar is the precursor of this literature. It is not Pandora's curiosity which interests us.

33Genetic engineering research with recombinant DNA has developed new strains of microscopic organisms.
here. What we are concerned with are the contents of the jar. In the myth, the jar contained evil sprites which escaped and plagued humanity with all forms of illness. Similarly, in this literature the weapons of destruction, like the evil sprites, have a latent potential. These stories specifically concern the effects of man's misuse and misdirection of knowledge and power toward destructive, unnatural or evil ends. The technology which is developed is dangerous from the outset. We see what happens when things go wrong or the unexpected occurs and the latent potential of the technology is released and becomes an immediate threat to human survival.

The development of our biological and chemical weapons, in addition to our pollution of the environment, has been one of the concerns of science fiction writers. The Satan Bug (1962), by Ian Stuart (Alistar MacLean), is an example of the threat that biowarfare research poses. In the tale a small phial of a deathly toxic man-made microbe is stolen from the Mordon biological warfare research center. The city of London England ends up being threatened by exposure to the microbe. Similarly, Binary (1972), by John Lange (Michael Crichton), poses a ZV nerve gas threat to the city of San Diego California. In this tale, John Wright - an average American citizen - steals two cylinders of a binary\textsuperscript{34} nerve gas and arranges to disperse

\textsuperscript{34}A binary is any system composed of two interacting elements.
one half ton of the gas, which would kill the population of
the city, to coincide with political events occurring in
San Diego at the time. In each of these novels some of the
most lethal secret biochemical military weapons man has created
are rather easily procured by insane civilians. But through
the efforts of trained military personnel the imminent catastrophe
is averted just in time. Considering our memory of the Black
Death, the thought of another plague - albeit a man-made
plague - seems too frightening to consider. What we
consequently see in most stories are brief examples of the
effectiveness of the biochemical systems, but full exposure
seldomly occurs.

An exception is I Am Legend. Here the Earth is exposed
to a man-made plague which either kills people outright or
causes them to mutate into vampires. The whole population
of the Earth undergoes a change. As in Invasion of the
Body Snatchers, where the whole population is taken over by
aliens, the old population perishes and something else takes
over. The novel examines exactly what it is that makes us
human. Matheson sees our humanity as dependent on the status
quo. Vampires are anathema to the human race. But when the
surviving remnants of the human population mutate into vampires
it is Robert Neville - the last unchanged human being - who
becomes anathema. Similarly, in Invasion of the Body Snatchers
the humans who try to stop the aliens by destroying the alien
pods are also considered anathema by the status quo. Essentially, I Am Legend is a commentary on our fears of those who are different. It stems from our fear of physical and mental abnormalities in humans and animals. The modern carry-over is a fear of aliens - xenophobia.

I Am Legend is also a moral and ethical commentary on the development of biowarfare systems. Matheson sees these weapons as the most dangerous. Whereas there would be survivors in a nuclear confrontation, he sees these biological weapons as capable of destroying the whole population of the Earth. He and other writers who are concerned with our biowarfare and chemical warfare technologies question the necessity of such weapons in modern warfare. The use of these weapons as deterrents, with the intention of never using them, is a commentary on the military insanity of the times.

Another exception of a different sort is The Day of the Triffids (1951) by John Wyndham. In this novel the population of Earth is exposed to Triffids - a killer man-made species of plant. The Triffids are large, intelligent and breed prolifically. In this type of fiction man usually attempts to stop the biochemical threat by direct action or by finding a cure for or a weapon to use against it. In I Am Legend Neville's time is spent between scavenging, killing vampires and searching for a cure to the vampirism. In The Day of the Triffids, though, no weapon can be found to eradicate
Eventually the Triffids cover the Earth and mankind - islands of humanity amid seas of Triffids - awaits the end in isolated fortresses.

Man also meets his end in Kurt Vonnegut's *Cat's Cradle* (1963). At the close of this novel a chemical called ice-nine is released into the ocean and freezes all of the water on Earth. Since the human body is approximately eighty percent water, it is also inevitable that the people of Earth eventually freeze too. Whereas most writers are concerned with more glamorous man-made catastrophes such as gas, contagion or nuclear holocaust, Vonnegut's doomsday concept is based on the idea of making water inert. Since most life on Earth depends on water for survival, the freezing of all water spells the end of life. Indirectly, Vonnegut's doomsday is a commentary on the fragile nature of the overall ecosystem on Earth. It is a warning that our chemical tampering, indiscriminate dumping, and inefficient storage of industrial and military chemicals may one day permanently alter the environment and, quite possibly, make life on Earth unfit for human survival.

Particularly since the events of August 06 and 09, 1945, when atomic bombs were dropped on Hiroshima and Nagasaki, the development of our nuclear weapons technology has been the focus of much of this literature. The writers concerned with...

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35 In the film version (1963), screenplay by Philip Yordan, sea water is used to destroy the Triffids and yield a happy ending. (Allied Artists).
this topic are, for the most part, singularly pessimistic about man's discriminant use of his sophisticated weapons systems. One of the exceptions is *Failsafe* (1962) by Eugene Burdick and Harvey Wheeler. In this tale a Russian jamming system blocks the re-call code during an American Strategic Air Command alert and sends a bomber wing into the Soviet Union. One of the planes manages to reach the Russian interior and drops a thermo-nuclear bomb\(^\text{36}\) on Moscow. The story focuses on the communications between the President of the United States and the Soviet Premier and their attempt to avert a nuclear war. It is finally agreed that a nuclear bomb will be dropped on New York City to pay for the destruction of Moscow. And the Americans drop the bomb on their own city. This novel shows the pitfalls of even the most failsafe technology. But more so, it shows the necessity of not relying fully on any technological system. Furthermore, it shows that when it comes down to survival we are dealing with a very human issue, a moral and an ethical issue. And in the long run it is a concern for man's honesty, goodness and sense of fairness which prevails.

In *Dr. Strangelove* (1963), based on *Red Alert* (1958) by Peter George, Colonel Jack Ripper—the commander in charge of the SAC re-call code—goes insane and sends a bomber wing to attack the Russians. Fluoridation is one of the reasons for Ripper's insanity. He sees it as a communist plot

\(^{36}\)This refers to the hydrogen bomb. It is characterized by reactions involving the fusion of atomic nuclei at high temperatures.
to sap and impurify our natural bodily fluids. He is crazy and sees the evidence of communist infiltration everywhere, even in the ice cream of children. *Dr. Strangelove* is based on the idea of keeping technological parity in our nuclear overkill factor. As the world is about to be destroyed near the end of this nuclear black comedy the survival of American officials, by staying in used mine shafts for one hundred years, becomes an issue. But the immediate strategic concern becomes whether or not there will be a US/USSR mine shaft gap.

In addition to the concepts of first strike and technological parity, *Dr. Strangelove* also introduces the idea of a doomsday bomb used as a deterrent. This bomb would make the Earth uninhabitable for ninety-three years.\(^{37}\) Ironically, the Russians have kept the bomb a secret so it in no way could work as a deterrent. The point which *Dr. Strangelove* raises is why build such a deterrent? Just because we have the knowledge and the technological expertise does not mean we have to develop such lethal devices. *Dr. Strangelove* serves as a warning that some of our technologies are so lethal that they can never be used. The technologies are pointless.

\(^{37}\) The Russian ambassador informs the Americans that the bomb is made of Cobalt-Thorium G with a radioactive half-life of 93 years. Realistically, the gamma ray half-life of Cobalt is negligible but the gamma ray half-life of Thorium 232 is longer than we are lead to believe. Thorium has a gamma ray half-life of 1.4 billion years. No doubt, the fictional half-life is used over the actual half-life because the latter is so ultimate.
The other stories predicting nuclear war are more serious than Dr. Strangelove. In On the Beach and in The Martian Chronicles a nuclear war occurs while the observers are away from home. In On the Beach the observers are the crew members of a nuclear submarine who survive the massive nuclear strikes because their ship is submerged during the nuclear exchange. In The Martian Chronicles the colonists on Mars see the Earth enveloped in an ever increasing nuclear fireball until they know that all life has been destroyed. In each instance, the observers are isolated from the immediate action. The observers in On the Beach are not quite as fortunate as the colonists on Mars, though. The radioactive cloud resulting from the nuclear war in the northern hemisphere eventually works its way into the southern hemisphere and finally kills the last handful of survivors, including the submarine crew, in Australia. Both of these novels are haunting because everyone on the Earth perishes. Man perishes completely in On the Beach but in The Martian Chronicles a handful of humans survives on Mars. These tales arouse a sadness because we see man perish and also because we see the Earth - our home - destroyed.

The other tales of nuclear war are less pessimistic. In these tales a nuclear war occurs but man survives. In A Canticle for Leibowitz (1959), by Walter M. Miller, Jr., we begin with the post holocaust remnants of the Roman Catholic
church in Texarkana, see the development of the church through a dark age and finally see the new church during another nuclear age. The novel is cyclic and moves from post nuclear war to the onset of another nuclear war.

Whereas other writers have been concerned with nuclear war as the doomsday, Miller toys with the idea of a nuclear war as the end of the old human cycle and the beginning of the new. He sees nuclear war as something which does not destroy mankind but does destroy civilization for a time. Moreover, he sees this war as something which continually aids the evolution of man through radiation induced mutation. At the outset of the novel and at the close Miller refers to the gross human mutations. At the end we encounter Rachel - the additional head growing from the shoulder of Mrs. Grales. It sleeps for years while Mrs. Grales lives but comes alive when Mrs. Grales is unconscious. Rachel is a tabula rasa and exists in a state of wide-eyed innocence. She awakens - is born - during a nuclear attack. Miller himself suggests the coming of a new Eden, a world peopled by Rachels, a simpler world which perhaps marks the end of the cycle.

The haunting figure in this novel is Lazarus. On one hand he is an optimistic symbol of the continuance of man through this apparently predestined cycle of the birth and self destruction of humanity. But on the other, he is the reminder of mankind's repeated folly leading him to destruction.
The most optimistic aspect of *A Canticle for Leibowitz* is the last chapter. In this chapter we witness members of the church being loaded onto a starship. They intend to leave the Earth and colonize a planet in another solar system. In this way, they presumably escape the cycle which is doomed to repeat itself on Earth. They take off as the horizon glows with the detonation of nuclear missiles.

Another tale looks at nuclear war from a future perspective with the suggestion of a cyclic pattern. In *Planet of the Apes* over two millennia have passed since the nuclear war. Man has gone back to a native state and apes are now the ruling species. The hero, Taylor, thinks his spacecraft has landed on an alien world until he escapes from the persecution of the apes and finds the Statue of Liberty half buried on a beach in the forbidden zone. Only then does he realize where he is and what man has done. He realizes that while he and his crew traveled through space, supposedly toward a nearby star, man had fought a nuclear war which completely destroyed his culture.

In *Planet of the Apes*, as in *On the Beach* and *The Martian Chronicles*, the heroes are physically distanced from the decisive action. In *On the Beach* it is water that saves them from the nuclear exchange. In *Planet of the Apes* and in *The Martian Chronicles* it is space. The haunting sadness in *On the Beach* and *The Martian Chronicles* is the result of not
being distanced in time. In these works the heroes mourn for the dying. In *The Martian Chronicles*, particularly, the sadness is aroused because of the dying Martian race and the dying human race on Earth. But in *Planet of the Apes* the hero is distanced by space and by time. Taylor's spaceship is influenced by the relativistic effects of time. So, in effect, it is a time ship. Consequently, when Taylor discovers the Statue of Liberty and realizes that a technical fluke has returned his spaceship to Earth, an Earth two thousand years older and ravaged by nuclear war, he is suffering culture shock. His only sentiment is anger. He is angry because he sees what man has done to himself. Taylor's anger, though, connected with his memory of the past, blinds him to the reality of the present. The important point which he fails to see is that man has survived.

Morally and ethically *Planet of the Apes* is a commentary on our modern society and the direction it is turning. Boulle sees mankind as being essentially uncivilized and not far from the wild state from which he sprang. The state of mute wilderness in which mankind finds himself in the novel seems like a purged return to a state of innocence. One of the ideas science fiction writers have toyed with is based on the biblical concept of purgation. We see it with *The Flood*. Writers see a future nuclear war as a cleansing act, a
purgation by fire.

It is significant that future man is mute. By having no verbal tradition the link with the past has been lost. On one hand Boulle suggests that with this physical limitation man's development will not be cyclic. But, on the other hand, like the people in *A Canticle for Leibowitz* who leave the Earth to start anew, Taylor and his woman - analogous to Adam and Eve - leave for the wild to start anew. Taylor is the link with the past and the promise for the future. But he is also a curse since he represents the foundation for the repetition of the cycle.

In *The Time Machine*, although it is not implicit that a nuclear war has occurred, nevertheless, there has been a war of great devastation. And when our hero travels into the future and encounters the pastoral Eloi and the technological Morlocks it is apparent that mankind has undergone a division. A drastic biological mutation has occurred in man with the Morlocks which suggests the effects of radiation. The Morlocks are not merely savages, they are mutated abominations of humanity. The novel is very moral and the Morlocks, who prey on the Eloi and live underground, are seen as figures of evil and are eventually destroyed. In addition, because the Morlocks are technological, they represent a link with the past. They are a reminder of the technological folly that lead to the great war. In other words, technology is seen
as the essence of evil. But a mutation in man has also occurred with the Elois. They are not physically malformed like the Morlocks. In fact, to the contrary, they are beautiful. They are changed mentally. The ability to think independently, to question, to fight is dormant, in the Elois. When the air raid sirens blare they are mesmerized and, like sheep, go to the awaiting cannibalism of the Morlocks.

The Morlocks and the Elois are an unnatural division of humanity. Each represents an extreme. The Morlocks are totally technological and carnivorous. The Elois are totally pastoral and herbivorous. The Morlocks are the farmers. They work their underground machines and make sure the Elois are well fed. The Elois are the pacific animals. The Morlocks provide them with their essential needs. They are bred. Each night they are rounded up and stabled. And when it is time, they are slaughtered for food.

The time traveler represents normalcy in this future world of extremes. He initiates the actions that awakens self motivation in the Elois and results in the destruction of the Morlocks. What is left is a world without evil. Wells comes very close to establishing a new Eden in this novel. The Elois exist in a state of innocence. There are no adults. They have all perished to the cannibalistic Morlocks. The Elois know nothing. They do not even know how to fend for
themselves. It is the time traveler who presumably teaches them how to survive. The specifically selected information which he brings to the future from his library is the first encounter the Elois have with knowledge.

Wells, just like Miller and Boulle, is toying with the idea of starting over. The aftermath of the war with its subservience to the Morlocks is similar to the dark age in *A Canticle for Leibowitz* and the return to the native state in *Planet of the Apes*. The links with the past have been arrested. All sense of history and tradition has been lost. Consequently, the Elois have no guilt or shame of the past. Most of all, they have no concept of good and evil. They are, by their nature, good but they do not recognize the Morlocks as evil. It is the time traveler who sees the Elois and the Morlocks for what they are. And to the extent that he exposes the Morlocks as evil he is a minor corrupting influence upon the Elois. The ability of the Elois to recognize the Morlocks as evil is a small price to pay considering that the Elois are brought out of their lethargy and gain their freedom. More so than being a corrupting influence the time traveler is a redeemer. He is the only teacher the Elois have. Furthermore, he is the only adult. Wells sees the time traveler as a good man of his time and the Elois as the good part of future humanity. Together he sees them overcoming the destructive pattern of the past and founding a new world, a new golden age.
To summarize, there are some things which man should not know. He is still a warlike, impatient and impetuous creature who lacks the sociological maturity to deal sensibly with much of the knowledge he has acquired. His compulsion to innovate at the threshold of knowledge has sometimes led to serious errors. But many of his technologies are now so sophisticated and so lethal he can no longer afford the luxury of errors. He has indulged in pointless technologies which can never be used because they are too lethal. And, in most instances, he does not have the technology necessary to deactivate these lethal devices. It seems inevitable that man will eventually lose control of his devices and may or may not end up destroying himself.
III

THE SOCIOLOGICAL PERIL

Man as Oppressor

In chapter one the argument concerned three non-human threats to man's survival — the geopoietic, the cosmopoietic and the xenopoietic. In chapter two the discussion focused on the fourth threat to man's survival — the anthropoietic, or how the products of man's unbridled creative and destructive freedom pose a threat to himself. In this chapter another aspect of the anthropoietic doomsday threat will be explored. The argument will concern what happens when the freedom to be creative and destructive is stifled and man goes to the other extreme and attempts to rigidly control his society. By instigating control over his technological and sociological evolution man poses a serious threat to his survival.

In chapter two it was mentioned that man's need to create and destroy springs from a desire to emulate the gods. Similarly, man's desire to live in a perfect world springs from his mythology concerning the home of the gods. Man has long imagined the possibility of creating a heaven on Earth. Essentially, stories concerning a return to a state of innocence or the return to a golden age reflect man's desire to re-create the Garden of Eden. In classical utopian literature writers attempted to re-create this perfect world. For the most part,
their concepts of perfection meant a return to a simpler time when people were happy, healthy and equal. It was a return to a pastoral age where people could work at what they wanted. It was an age where leisure was more highly valued than labour.

The underlying message of this utopian literature was that a perfect world was desirable; furthermore, it was that this type of world was attainable. At various times in the past these utopian concepts have had a great influence on the public. People have left conventional society and have attempted to form small self sufficient perfect communities. But no matter how closely these enthusiasts tried to duplicate the best aspects of these fictional societies, their small communities were dismal failures. These sociological experiments failed because they were based upon idealistic classical utopian concepts. These classical utopian concepts were never meant to have any realistic applications. They were developed for the sake of argument. One of the common pitfalls of the sociological experiments was a lack of productivity. Everyone in these communes pursued his own interests and eventually the commune found itself in the position of imminent starvation. The idealistic classical utopian concept of individuality, where the individual comes before the society, realistically ended in social anarchy.

Bacon's New Atlantis, Bellamy's Looking Backward, Harrington's The Oceana, More's Utopia, Morris' News from Nowhere, and Plato's The Republic are all examples of classical utopian literature.
Contemporary utopian concepts seem like an opposing reaction to the classical designs. The great change is the emphasis on the society over the individual. The egalitarianism of the classical utopia became totalitarianism in the contemporary. Both concepts strive to produce a new type of society. The classical utopia emphasized a pastoral society - a return to the simplicity of the Garden. But the contemporary utopia emphasizes a technological society - man's attempt to build his own mechanical version of heaven. This approach parallels the tale of Lucifer's construction of Pandemonium to rival the city of God. The association of the classical utopia with heaven and the contemporary utopia with hell is so obvious that a new term was coined for the contemporary utopia - the dystopia or bad place.

Totalitarian suppression of human freedom is the main issue in these dystopian works. In these societies people are dehumanized by the government. Their personal freedoms are stripped from them. With drugs and psychological conditioning their freedom of choice is often removed. The government so physically and mentally intrudes into the lives of the populace that, in many instances, the people are left with no substantial identities and, like prison inmates, they are designated numbers or categories. In these societies people are

39 In We (1924), by Yevgeny Zamyatin, the hero is D 503. In THX 1138 (1971), screenplay by George Lucas, novelization by Ben Bova, the title represents the name of the hero.
considered mere cogs in the social mechanism. They represent an expendable human resource. It is this attitude toward human significance which jeopardizes our survival.

The government in these totalitarian states controls most aspects of human existence. In some dystopias the government even exerts control over life and death. In *The Edict*\(^4^0\) (1972), by Max Ehrlich, overpopulation forces the government of the United States to pass an edict making births illegal for the next thirty years. The story focuses on a husband and wife who dare to contravene the law and have a child. They are forced to have the child in secrecy and nurture it in the basement of their home. A jealous neighbor who knows of the child eventually betrays them to the authorities and they are condemned to death by suffocation. A government suffocation dome is lowered over them in the street but fortunately they manage to escape and eventually leave the United States for sanctuary in Canada.

In *Brave New World* (1932), by Aldous Huxley, people are not allowed to have children either. The word "viviparous" is considered a smutty word from out of the septic past. In this novel babies are mass produced in government hatcheries much like cars are mass produced on assembly lines. The government has absolute environmental control over the populace. Several types of human beings are manufactured in genetically identical bokanovsky groups. Humans of various intelligence levels

\(^4^0\)Made from the film *Z.P.G.* (Zero Population Growth) (1972), screenplay by Max Ehrlich and Frank DeFelitta. (Paramount).
and physical attributes are produced. Together with extensive behavioral modification the government produces people who are ideally suited for specific jobs. One of the issues which Huxley raises in this novel is the extent to which government control should be allowed. The individuals in Brave New World have no control over their destinies. Their lives are manipulated from the point of artificial conception. They are, in essence, less than human. They are automatons.

Some writers have focused on government control of death. In Soylent Green\(^4\) (1973), by Stanley R. Greenberg, dead humans are neither interred nor cremated. In this tale corpses are processed for their useful protein and manufactured into soylent green - a synthetic food used to helpfeed an overpopulated New York City AD 2022. The populace is unaware that the food rations they are given are actually made from human tissue. Greenberg is toying with the idea of a world so desperate for food that the government secretly decides to recycle human beings. The idea is distressing because, no matter what technological processes have occurred to make soylent green edible, it still amounts to cannibalism.

In Logan's Run (1967), by William F. Nolan and George Clayton Johnson, the government also exercises control over death. In this story the people of the domed city are only

\(^{4}\)Soylent is a fictional word derived from "soy beans" and "lentils", coined by Harry Harrison in Make Room! Make Room! (1966), the novelization.
allowed to live until thirty years of age. At that time they must participate in the Lastday rite of Carrousel. Government propaganda describes Carrousel in terms of the ultimate religious experience – death and resurrection. Few people though, are granted renewed life. Actually, Carrousel is a disintegration machine run by a computer which passes judgement on the participants. The law concerning the age limit of thirty is rigidly enforced by elite police officers called Sandmen. Their duties are to hunt down and kill runners who try to escape the judgement of Carrousel. In this novel Nolan examines the concept of population control through mandatory genocide. It is one of the most violent and extreme population control measures in dystopian literature. Killing human beings in order to maintain social stability is a sociologically regressive concept.

Social stability in some of these clockwork dystopian states depends on standardizing every aspect of human life. In *We* (1924), by Yevgeny Zamyatin, the people all wear standardized uniforms. They work at standardized jobs. They travel by standardized marching. Everything they do is regimented and constantly observed by the Benefactor and his Guardians. In this society human perfection means emulating the machine. In our society machines are designed to be useful extensions of man. But in *We* the people have become extensions of machines. Natural human behavior is so oppressed
in this society that people must even ask the permission of
the government before they may make love. The people in this
domed city are dry intellectual automatons whose main concern
is theoretical mathematics. And, as if the Benefactor and
his Guardians do not already have absolute control of this
society, after a small pathetic revolt arises and is squelched
by the state the Benefactor institutes a standardized mandatory
on-going brain operation to curb all future outbreaks of
imagination among the people. In We human life is reduced to
the level of utilitarian existence. Human value is null.

Immediate gratification is one of the methods used to
control the people in these dystopian societies. The use of
drugs and sex to keep the populace happy is common. In
Logan's Run the Sandman Logan goes to the hallucimill to be
entertained. He is injected with a short duration lysergic
foam and has an hallucinogenic trip. Later he visits the
glasshouse pleasure center where he makes love to one of the
women. In this domed twenty-third century greater Los Angeles,
happiness is something you can buy.

Happiness is also something you can buy in A Clockwork
Orange (1962), by Anthony Burgess. In this novel sex and
violence are all sources of immediate gratification. Alex
and his droogs are young, take drugs and exhibit exceptional
violence. They usually begin their evenings on the town by
going to the Korova Milkbar and buying Moloko spiked with
any number of drugs such as vellocet, synthemesc or drencron. We first encounter Alex and his droogs drinking "milk with knives in it" - a stimulant which lowers their inhibitions and allows them to exhibit ultra-violence. One of the most violent episodes directly concerning drugs and sex occurs when Alex and his droogs break into the house of P. Alexander and gang rape and brutalize his wife before his eyes. They abuse the lady to such an extent that she dies. And they beat Alexander for the sheer pleasure of it with the result that he becomes a paraplegic. Sex and drugs are also associated in the episode where Alex picks up Marty and Sonietta - two ten year old girls - and takes them home to Municipal Flatblock 18A. He drugs them with scotches filled with "pins-and-needles" soda. Alex injects himself with a stimulant he refers to as "growling cat jungle secretion" and while the girls are drugged Alex sexually abuses them.

Drugs and sex are also used to keep the populace happy in *Brave New World*. The people are encouraged to take soma - an hallucinogenic drug. They use soma, or rather go on soma holidays, to either fill in the socially empty parts of their daily lives or to compensate for other expected sources of pleasure which are not immediately available. The government promotes soma to pacify the masses. It is an inexpensive way to keep the people happy while keeping them controlled during their non-working hours. In combination
with soma, recreational sex is also available. People are encouraged to constantly change sexual partners. The women who are bred as sexual partners are always ready and walk about with packets of birth control pills fastened onto their belts. Group sex is also available. The Solidarity Service - a mock last supper - is a soma-drugged hedonistic orgy in which a group of twelve becomes one with the Greater Being through group orgasm. Soma-drugged individual sexual experiences are also available at the feelies - films accompanied by electrical mood altering stimuli. The viewers place their hands on the metal knobs on the arm rests of their chairs and feel, taste, smell and become emotionally aroused, in addition to seeing and hearing the film. The feelies are considered the ultimate sensory experience. Actually, these films represent a sophisticated way of hedonistically placating the populace. The feelies flood the minds of the people with so much sensory information that they are unable to think.

The governments of these dystopias promote drug use and sexual contact because these recreations dull the minds of the populace. These recreations promote a sense of euphoria in the people and make them unaware and uncritical of their actual situation. This idea is frightening because the government can easily manipulate a drugged populace.

In some dystopias drug use is mandatory and sexual contact is prohibited. In *THX 1138* (1971), by Ben Bova, THX and his
co-workers who labour in the anxiety prone environment of a sophisticated nuclear processing plant must take drugs in order to function adequately at their jobs. The sedatives make THX calm and immediately responsive to the instructions of supervisors who speak over his earphones. The drugs also make it easier for THX to follow suggestions rather than to think for himself. The whole population of the subterranean city in which he lives is controlled in the same way. To avoid taking the drugs is against the law. Everyone is monitored and those who break the law are reprogrammed, imprisoned or killed. The drugs effectively curb all imagination. The consequence is that the people in this society are intellectually reduced to the level of drugged foot-shuffling mental patients.

In the antiseptic world in which THX lives, everyone has shaved heads and wears white uniforms. It is a world where sexual intercourse is forbidden. Actually, the drugs given to the male population makes sexual intercourse physiologically difficult. Consequently, all breeding is done by artificial insemination. THX first rebels against this society by refusing to take his drugs. Furthermore, after he is off his drugs he begins to make love to his wife and she becomes pregnant. The behavior of THX and his wife LUH is considered subversive by the state with the result that THX is imprisoned and LUH is killed and her number reassigned.
A similar situation exists in *Nineteen Eighty-Four* (1949), by George Orwell. In this society sex is only allowed for purposes of propagation. The state exerts such control over the proles\(^{42}\) that it decides who is to have sexual contact and who is not. The privilege to have sex can be given and it can be taken away. Similar to THX who illegally has sex with LUH, Winston illegally has sexual contact with Julia. This is considered a subversive act by Big Brother and both Winston and Julia are psychologically tortured in the Ministry of Love until they again conform to society. Essentially, the crime that both THX and Winston commit is that their relationship with their women is based on love. The extreme punishment that these individuals receive, though, does not befit the minor nature of their crimes. The exaggerated reaction of the state to these offenses is indicative of a total disrespect for the nature of human life. This type of state which has absolute control over human beings and is more concerned with its own welfare than for human life poses an ominous threat to human survival.

In these totalitarian states love represents a threat to political stability. Consequently, in *We* the relationship of D503 and I330 is quickly squelched. And in *Z.P.G.*, George and Edna are sentenced to death because they have a baby. These dystopian states have a greater chance of maintaining

\(^{42}\text{Proles is a contraction of proletariat.}\)
absolute control over the populace if all emotional and love
ties are repressed. These societies are ego oriented. People
are encouraged to be self loving and to love the state as they
love themselves. By destroying the family unit these governments
are able to manipulate the minds of the people more effectively
and from an earlier age. The government becomes the only
father and mother the people have known and trusted. This idea
is frightening because this ersatz parent does not have the
best interests of the people in mind.

Another type of control that these dystopian states
exert is information and mind control. In Nineteen Eighty-Four
the Ministry of Propaganda placates the masses with useless
information. The totalitarian state in this novel is a
carry-over of the military control in Britain during the
second world war when the War Measures Act was in effect. The
masses live in a military state. Their daily lives are
monitored by surveillance devices in and out of their homes.
All information concerning even the most private aspects of
their daily lives is available to the government. All
information travels from the people to the government. What
travels from the government to the people is misinformation.
For example, the people are falsely lead to believe that their
country is still at war.

Orwell is toying with the idea of a government easily
controlling a society which is no longer able to use its
language effectively. He sees language as thought. By replacing language with slogans and cliches you cut down on thought and are able to more adeptly manipulate the people. The same idea is found in Brave New World where slogans are programmed into children while they sleep. The children accept the slogans as the truth about their world. In Nineteen Eighty-Four truth is subjective. It varies from one moment to the next depending on what the propaganda says is true. The unchangeable events of the past consequently become changeable. The government constantly rewrites the past. Reality becomes whatever Big Brother says is true.

The danger of a government which deals solely in propaganda is that the condition of the state is probably much worse than the government indicates. The populace could be facing imminent catastrophe but the government would not inform them of the fact. This type of government shows grievous irresponsibility and poses a threat to the survival of the people. Furthermore, by constantly changing what is true, the state psychologically wears down the people until nobody listens to or even cares about what is said. In other words, the state manipulates the people to the point where no one bothers to question what the state is doing. This is an horrific situation. The state then has the power to do anything. Unlimited power in the hands of a few poses an serious threat to human survival.

In Nineteen Eighty-Four thinking is considered a subversive
act. Consequently, Winston - the protagonist - is considered dangerous by Big Brother because he starts keeping a diary. The diary is a record of Winston's thoughts and his self awareness. It represents history. In the diary Winston questions Big Brother. He questions whether there actually is a war. He believes that the state is firing missiles upon itself to keep up the pretense of war and consequently to keep the War Measures Act in effect. Winston's diary represents the only real truth in a world of metamorphosing state truths. He is a threat to the state and is punished because he sees the state for what it actually is.

Information control is also found in Fahrenheit 451 (1953), by Ray Bradbury. In this society it is against the law to read books. The standardized government publications consist of non-captioned cartoons. Similar to Brave New World and Nineteen Eighty-Four, language is seen as dangerous. Everything found in books is seen as detrimental to society. Books are considered the greatest single source of human misery; so, they have been outlawed. The society stresses happiness. The masses rely on wall television for all information and for mindless entertainment. The people believe everything they are told over the television. There is nothing in this society to intellectually stimulate the people. Verbal communication is minimal. Vocabularies are small. The people either watch their televisions, take drugs or indulge in sex to pass
their non-working time.

The hero of *Fahrenheit 451* is a fireman named Montag. Unlike our firemen, the firemen in this future society start fires. Specifically, they are trained to find and incinerate books. After years of loyal service to the fire department Montag becomes curious about books and begins to read. His wife informs on him and he is hunted by the police but manages to escape. Montag is considered a threat to this society for the same reason that Winston is a threat to his. Montag is a threat because he has started to think and can see his society for what it is.

Government mind control is the issue in *A Clockwork Orange*. In the novel Alex is eventually caught by the police and imprisoned for his violent activities. He is provided with the opportunity to substantially reduce his prison term if he participates in a new treatment. Essentially, Alex becomes a human guinea pig in a mind control experiment called Ludovico's Technique. He is given drugs which make him physically ill when he is excited and while on the drugs he is exposed to films showing grievous acts of violence. He very quickly becomes aversively conditioned to violence. Later, when the treatment is completed and Alex is off the drugs, he cannot even think a violent thought without becoming physically debilitated.

A shortcoming of the aversive conditioning is that Alex
can no longer even physically defend himself against attack. He is subsequently attacked by the old drunk that he and his droogs once beat up. He is also taken to an isolated location and physically beaten and almost drowned by two of his ex-droogs turned respectable police officers. Shortly after, he is nearly driven insane by P. Alexander - the politician whose wife Alex and his droogs had raped to death. Alex's conditioning forces him to jump from an upper story window in Alexander's house. He injures himself badly but does not die. The government then considers it best to de-aversively condition Alex. The point which Burgess makes in A Clockwork Orange concerns freedom of choice. The greatest power any government can have over its people is mind control. Burgess makes the point that it is preferable to have a society which has freedom of choice, rather than a society which is controlled. He prefers Alex's violence over a non-violent Alex who is dictated by conditioned responses.

Similarly, in Brave New World the people have no freedom of choice. What they think and feel has been physically and psychologically programmed into them from before they were decanted. The process also continues during their childhood. Huxley is toying with the heredity versus environment argument. He proposes that the environment is the major factor that

43 Decanting is the test tube equivalent of being born.
determines behavior. Mind control is also an issue in Nineteen Eighty-Four where Winston's fear of rats is used to torture him into confessing. It is also an issue in We where everyone must have a behavior controlling operation. No matter what the method used to achieve mind control, it remains the most dangerous threat to human survival. When human intelligence and instincts are impaired, man's natural predisposition toward survival is also impaired.

Many of these dystopian societies exist as city states. Information control is such that the city is the only world that the people know. In the rare instances where people are aware of an outside world they have been exposed to propaganda about the outside and prefer the city. The cities are usually neurotic, overcrowded, technological places where people are stringently controlled. Outside lies the natural world.

The world outside the domed city in We is seen as primitive yet it is almost described in Edenic terms. In contrast to the intellectual world of the domed city, the outside is an emotional place full of sights and sounds and natural impulses. Similarly, in Brave New World the outside world is an emotional place, whereas, the city is cold and emotionally sterile. In this novel the outside world is the reservation - a throwback to our twentieth century society and a parallel to North American Indian reservations. It is reminiscent of a time when man still existed within the scheme of nature. On the reservation
people love each other, raise families, work hard, grow old and die. The reservation represents life as it is. In contrast, the city has isolated people from nature. The city people do not love or have families. They always look young through advanced medicine. There is no hunger, or pain, or emotional suffering. The city people exist in a synthetic, unreal and unnatural environment.

In Logan's Run the outside world is considered a rumor. It is referred to as "sanctuary" but no one has ever seen it. When Logan becomes a runner he comes to realize that if he reaches sanctuary he will survive Lastday. Outside the domed city the old city of Los Angeles has been overgrown. The land has returned to nature. When Logan and Jessica reach the outside they become Adam and Eve figures in this natural world. Similarly, in THX 1138 the hero is seen as an Adam figure when he climbs from the subterranean city into the sunlight of the outside world. It is significant that both Logan and THX find their way out of the technological maze of their cities into the pastoral environment of the outside world. Similarly, Montag leaves the city and travels to the country where he meets with the book people. For these heroes, dystopia has become utopia. What they leave behind is an oppressive nightmare world. What they go to is a world of freedom.

The oppression of these dystopian societies naturally leads to outbreaks of rebellion, but these rebellions against
the state are quickly stifled. The rebel, in most instances, ends up in a situation which is worse than the one he was in before. In *We*, D503 is given the operation. In *Nineteen Eighty-Four* Winston is viciously brainwashed. The fortunate heroes are those who manage to escape the dystopian oppression by going into the natural world, as is the situation with Montag, Logan and THX 1138. The dystopian society cannot be altered by a single member of the masses. The hero can only hope to win a personal victory with his private rebellion.

On the other hand, the dystopian society seals its own fate. It is inevitable, given enough time, that it will eventually collapse. A large ratio exists between the number of leaders and the vast numbers of the masses in these societies. The leaders maintain control through their technology. All technology, though, is prone to mechanical breakdown. As the dystopian society ages, the tendency for technological breakdown increases. Similarly, as the dystopian society expands, the point will be reached where repairs can no longer keep up with the frequency of technological breakdown. Once the technology begins to fall apart, the government will begin to lose control of the people. Conceivably, because the state relies so heavily on drugs to control the people, any technological difficulty that causes a drug delay could instigate a revolt.

For the most part, dystopias use extreme measures to control
human beings. In most instances these measures work. But there will always be individuals who fight these attempts at control. Controls are necessary in a dystopia because the totalitarian state is contrary to human nature. Without extreme measures the state would collapse. The people would simply leave. To hold people in the state against their will and to effect their minds until they no longer possess a will is a crime against humanity and a threat to human survival.

To summarize, the dystopia is a totalitarian state in which the people are controlled. The government passes laws which the populace must follow. The people are usually drugged and exposed to propaganda or conditioning to make them docile conformists. Conformity in a dystopia means stability. It is good for the state but detrimental to the people. The people are told that their happiness is important. Actually, this is to obfuscate the real issue - freedom. The totalitarian state removes most human freedom. Often it goes so far as to remove freedom of choice. The loss of human freedom poses the most ominous threat to the survival of man.
IV

WHAT IT ALL MEANS

To summarize, the doomsday theme is divided into two parts. The first is the endoteleological. This includes both the geopoietic and anthropoietic sources of doom or threats to human survival. The second part is the exoteleological. This includes the cosmopoietic and xenopoietic sources of doom.

The discussion of the geopoietic source briefly mentions the physical threat that the Earth poses to mankind but is essentially concerned with the microscopic and macroscopic biological threats. The discussion, in part, concerns bug-eyed-monsters found in science fiction and concludes that, despite the fictional threat of a BEM invasion from outer space, the real bug-eyed-monsters are found on Earth. The discussion of the literature also points out the serious threat that natural plagues pose to man. The relationship between the biological size of threats to man and his fear of the unknown is also discussed. One of the conclusions is that a creature which is invisible to the naked eye due to either minute size or environmental concealment is mysterious and the most frightening. Another conclusion is that intelligent creatures and instinctive creatures elicit the same degree of fear in man but for different reasons. The intelligent creatures evoke a fear of the predictable; whereas, the instinctive
creature evokes a fear of the unexpected.

The discussion of the **cosmopoietic** source concerns the threats that the universe poses to man confined on Earth. Part of the literature concerns the threat of meteor collision with the Earth. It concludes that man must develop a technology to defend his planet from such impending disaster. Solar malfunction also poses a threat in this literature. The conclusion is that man must also have the technology necessary to leave Earth if the need arises. Stories concerning miniaturization and time travel, based on speculation from given physical laws, are also discussed. One of the conclusions concerning miniaturization is that the realms of inner space and outer space are essentially the same in science fiction. One of the conclusions concerning time travel is that if time travel is ever possible it could be used as a weapon and detrimentally alter reality.

The discussion of the **xenopoietic** source concerns the threat that aliens pose to man. Part of the literature concerns physical alien invasion. The conclusion is that man must have the military technology necessary to defend his planet. Some stories also concern biological alien invasions. The conclusion is that man must have specifically designed isolation facilities ready to deal with this contingency. The literature also concerns benevolent alien encounters. One of the hopes moreso than a conclusion of this literature is that man is coming of
age sociologically. The other literature concerns a shift in perspective where man is the space traveler and is consequently considered the alien. One of the conclusions is that peaceful contact with other intelligent beings is desired but will not always be possible since, in most instances, these beings will attempt to defend their worlds against us. Another conclusion is that man is an exceptionally adaptable and resourceful creature.

Chapter two and three are specifically devoted to the discussion of the anthropoietic sources of doom or how man threatens himself as creator, destroyer and oppressor. Stories concerning man's technological creativity show what happens when he loses control of his creations. One conclusion from this literature is that man must not play god. There are some things which he would be wiser to leave undeveloped. A second conclusion is that man must neither grant his computers independent intelligence nor trust them with his welfare. Other stories concern what happens when machines break down or technical processes go too far. The conclusion is that, overall, man is more reliable than the machine irrespective of the level of machine sophistication. The literature also concerns the union of man and machine. The conclusion is that a real danger exists, especially in neurological cases, that man will be controlled by the machine.

The literature concerning man's technologically destructive
nature shows what happens when the monsters man has specifically produced for war are released. Some stories concern man's biological weapons designed as deterrents. The conclusion is that these weapons which are too lethal to use should never have been produced. The other stories concern man's nuclear weapons. This literature is about nuclear incidents and nuclear war. A conclusion is that the development of nuclear weapons reflects the insanity of our times. Only an insane culture would develop a technology capable of destroying the world. A further conclusion is that, unless we disarm, nuclear war is inevitable.

Stories concerning man as oppressor show what happens when society is rigidly controlled by the state. One of the issues in these stories is overpopulation. A conclusion is that food shortages are inevitable in the future. Another conclusion is that population control measures may be initiated. The other main issue in these stories concerns government control over all facets of human life including mind control. The conclusion is that as the educational level of the populace decreases, government control increases.

Considering the geopoietic, anthropoietic, cosmopoietic and xenopoietic sources of doom, the overall conclusion is that man poses the single greatest threat to himself.

In general, seven things can be concluded about the doomsday theme. One, it is pragmatic. The literature always
concerns a cause and effect relationship in the form of a threat to human survival and man's subsequent reaction to the threat. Two, it is paradigmatic. The doomsday theme is the basic underlying theme of most science fiction. It concerns the life or death situation. Three, it is didactic. It serves an instructive purpose. It gets the contemporary reader thinking about our present and possible future predicaments. Four, it is speculative. Given the present trends, the literature extrapolates about the future and forewarns of dangerous consequences. Five, it is mimetic. The doomsday theme holds a mirror up to reality and makes the reader aware of present situations through its realism. Six, it is prophetic. Science fiction, in general, is usually ahead of its time. What is science fiction today usually becomes fact tomorrow. And seven, it is impartial. The literature expects the worst to happen but hopes for the best. It gives man a 50/50 chance of survival.
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VITA AUCTORIS

Mark Carter was born on March 16, 1953 in St. Catharines, Ontario. He graduated with an Honours B.A. in English Literature from Trent University on November 03, 1979. During his Master of Arts candidacy at the University of Windsor he worked as a Teaching Assistant and a Research Assistant in the Department of English 1979-81. He is a member of the Steinbeck Society of America and also a member of the Science Fiction Research Association.