

Space and Science Fiction

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From the very early stages of human civilization, people were fascinated by the vast space above them. They observed the sky with naked eyes and formulated various theories on what they saw. As usual at that time, all natural phenomena which they could not understand were attributed to gods or spirits. However as early as 1300 BC Chinese scholars have recorded the eclipses of Sun and the Moon. Later the Babylonians and the Egyptians made great advances in the knowledge of the sky and the heavenly bodies.

People in the past thought the universe consisted of the sun, the moon, the planets and the stars. It was only in the 15th Century astronomers like Copernicus made

new discoveries. The invention of the telescope expanded our understanding of the cosmos further. According to modern cosmology universe consist of billions of planetary and star systems and is continuously expanding.

Conquering the Space

Although Man always wanted to conquer the space he did not have the means. Prior to the advent of reliable rocket technology, the

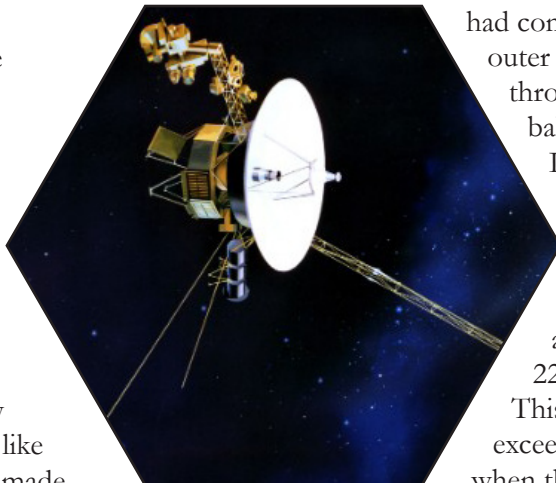
closest that humans had come to reaching outer space was through the use of balloon flights.

In 1935, the U.S. Explorer II manned balloon flight, reached an altitude of 22km (14 miles).

This was greatly exceeded in 1942 when the German

A-4 rocket climbed to an altitude of about 80km (50 miles). In 1957 Russian satellite Sputnik 1 went up to an earth orbit at an altitude of 215-939 km (134-583 Miles). The first human being to go into space was Yuri Gagarin. He was sent into an earth orbit in 1961. Three Americans escaped from the earth and went into a lunar orbit in 1968 on board the U.S. Apollo 8 which reached a maximum distance of 377,349km (234,437 Miles) from earth. Human beings landed on the Moon in 1969 with the successful completion of Apollo 11 programme.

By now many unmanned space craft have successfully examined each of the Solar System's planets as well as their moons and many comets. Unmanned space crafts are a fundamental tool for the exploration of outer space as well as for observation of the earth. In August 2012, Voyager 1 became the first manmade object to leave the Solar system and enter interstellar space.

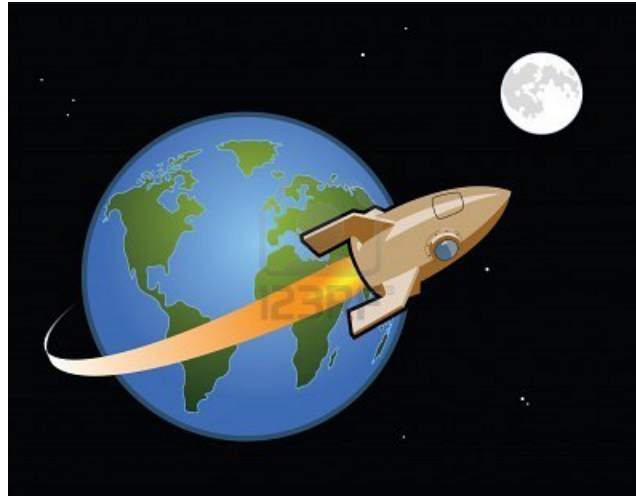


Early Science Fiction

Centuries before scientists started thinking of exploration of outer space, science fiction writers have discussed these issues in their stories on space and space travel. Some were written even before the advent of the scientific age. Arthur C Clarke in his address to the British Interplanetary Society in 1950 had divided these early stories into two groups. In stories that could be classified as mechanistic, some engine or technical device, more or less plausible according to the science of the time is used to bridge space. The second category consist of all those stories in which dreams, supernatural intervention or psychic forces are invoked. Most of the very early writings are in this non-mechanistic category.

Proto science fiction started appearing few centuries ago. It is no surprise that the most popular theme was space travel. The very first moon voyage story was written by Kepler, who discovered the laws governing the motion of the planets. He was a scientist as well as a mystic. The story titled *Somnium* was written in 1643 but was not published until after his death. Although he employed demons to carry his hero to the Moon, Kepler has foreseen two of the most important features of space travel. In this story he makes the point that as the hero leaves the Earth, air becomes rarefied and after some time it is not necessary to use any force for propulsion. At the end of the story it is revealed that the whole adventure is a

dream. It is a device that has been used often in stories of this kind. Another technique used by some writers in this period was some trance like state, where the mind or



even the body travels across space to other worlds.

Jules Verne's pioneering novel 'From the Earth to the Moon' was the first fiction to treat space travel as an engineering problem. This story published in 1865, dealt with issues such as loss of gravity and lack of air. Verne used a mammoth cannon to send a projectile to the moon. He took the trouble to check his astronomical facts and figures and had the ballistics of the projectile worked out by his brother-in-law, who was a professor of mathematics. In spite of the impossibility of this mechanism, Verne must be given the credit for conceiving many features common to present day space vehicles, such as hydraulic shock absorbers, air conditioning and padded walls.

Another milestone publication in the science fiction literature is *First Men in the Moon* by H.G.Wells

published in 1901. Wells invented an anti-gravity substance called "cavorite" which made the vehicle fly away from earth. Control was maintained by rolling up the sections of the cavorite towards the body that one wished to approach. The mechanism envisaged by Wells was much simpler than the noisy and messy rockets! However we should not dismiss the anti gravity device as an impossibility. This sounds similar to the 'space drive' used by many present day writers to reach the far corners of the universe.

One of the first writers to use rocket for interplanetary travel is Cyrano de Bergerac in his *Voyages to the Moon and Sun* published in 1656. Since the Rocket technology came on the scene few centuries later, he was not very knowledgeable about the mechanism of rocket propulsion. The motive power was provided by vials of dew around his waist. His argument was that as the Sun sucked up the dew in the morning it would carry him up with it. However he should be given credit for introducing the idea of using rockets to conquer space.

Rocket Propulsion

Although the rocket or some form of fire work was used in the space travel stories for a long time, it became prominent only in the late 19th Century. Verne used this device in his *Round the Moon* navigation published in 1870 to alter the orbit of his projectile. With the scientific work on rockets becoming known among the writers, most

of the stories that appeared in the Science Fiction Magazines during 20th century had very convincing technical details on rocket propulsion.

Other aspects discussed in science fiction stories with regard to space travel are the types of social systems encountered in other worlds, difficulties of communication and the reaction of extraterrestrial beings to their unexpected human visitors. Another issue taken up by the science fiction writers is the time taken to cross these immense distances and the aging of astronauts. Arthur C. Clarke in his landmark story *2001-A Space Odyssey* placed astronauts in frozen hibernation in order to complete the long journey. Some writers have taken advantage of relativistic slowing of time at high speeds while some have used the mechanism of a large ship – actually a small world – whose passengers were ready to spend millions of years and countless generations, to reach their destinations.

Some writers such as John W. Campbell have used principles of wave mechanics and uncertainty to move the spaceships. Some

have made use of concepts such as non-Euclidean or multidimensional space. Although Andromeda Nebula may be million of light years away in our space, it may be only few inches if we know the right

direction or the dimension to move. Many science fiction writers have found this direction to move their spacecraft and astronauts through space, and one day science may discover the same!

Another closely related subject is the time travel, which has been used by many writers. However the first science fictional time travel story is *The Time Machine* by H.G.Wells published in 1895. Wells made use of a mechanical device to travel through time. In this story a 19th century time traveler is taken through 800,000 years to the future. There he finds that humanity has evolved in to two races, one feeding on the other. Later writers of course used more scientifically plausible

concepts, than mechanical devices, to travel though space and time.

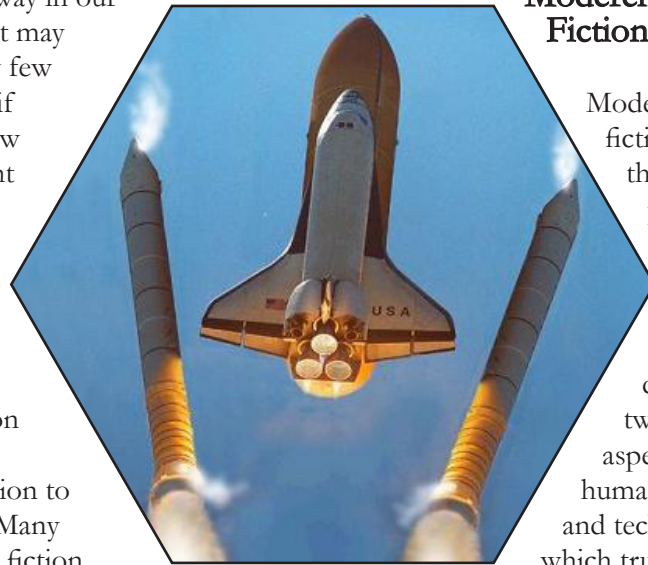
Modern Science Fiction

Modern science fiction is the most penetrating of all literary genres because it deals with two basic aspects of humanity – ideas and technology – which truly makes us human. Without

new ideas and technology Homo sapiens would have never become human. These two concepts are still shaping the future of humanity into new and exciting directions. This phenomenon could be explored only through the medium of science fiction.

What is science fiction? Science Fiction is a form of literature for people who value knowledge and who desire to understand how things work in the world and the universe. Encyclopedia Britannica defines Science Fiction as the *form of fiction that developed in the 20th century and deals principally with the impact of actual or imagined science upon society or individuals*. The term is more generally used to refer to any literary fantasy that includes a scientific factor as an essential orienting component

According to the well-known science fiction writer Issac Asimov, Science fiction goes beyond the main stream literature in one



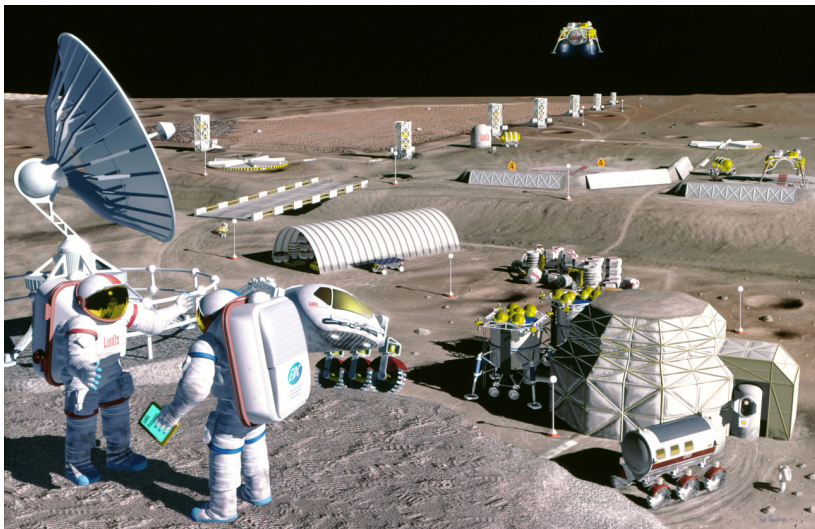
aspect- it does not deal with society as it exists, but with societies that may exist in the future. Elaborating further this idea, he has said that “*the successful science fiction story poses a social problem and suggests a possible outcome (though not necessarily a solution)*”

It is well known that many scientific developments and inventions were foreseen by science fiction writers. But, they did not succeed in anticipating everything connected with space travel. For instance all science fiction writers concentrated on space flight under direct human control and never realized what could be done by remote controlled probes. They foresaw computers but missed their true role in space flight. Science fiction writers also missed all sorts of activities that could be performed in space. Although they foresaw both television and landings on the Moon, no one anticipated reality by describing landing on the Moon that was watched by hundreds of millions of people on Earth as it happened.

Importance of Space

Addressing the first graduating class of the International Space University in 1988, Arthur C. Clarke emphasized the importance of space. *The resources of the universe are, by all human standards, are infinite. There are no ‘limits to growth’ among stars. Unfortunately there is tragic mismatch between our present needs and our capabilities. The conquest*

of space will not arrive soon enough to save millions from starved and stunted lives. Thus it is all the more urgent that we exploit to the utmost the marvelous tools that space technology has given us



-comsats, weathersats, geosats and all the other sats yet to be invented. This is reason that the third world needs space technology even more urgently than the so called developed world.

Outer space has long been the most popular venue for imaginative writing, and there is no doubt that fiction has helped to create reality. All the pioneers of astronautics were inspired by Jules Verne, and several others actually wrote fiction to popularize their ideas. Many American astronauts and Soviet cosmonauts have said that they were inspired to take up their careers by the space travel stories they read as children.

Even after space travel becomes in everyday reality, interplanetary science fiction will never lose its appeal. But certainly the approach of the future writers will be very different from past and present authors. Future writers will be no

longer be writing about satellites and astronauts, but about the future effects upon ourselves of the consequence of these developments. For instance there will be new conflicts arising among mankind after the establishment of colonies on other planets. Such problems will be far more important than any number of engineering trivialities. It is those issues that will be the concern of future science fiction writers.

Commenting on the value of science fiction and understanding of the cosmos, Arthur C. Clarke has said that *Anyone who reads this form of literature must quickly realize the absurdity of mankind's present tribal divisions. Science fiction encourages the cosmic view point. Perhaps this is why it is not popular among those literary pundits who have never quite accepted the Copernican revolution, nor grown used to the idea that man may not be the highest form of life in the universe. The sooner such people complete their education and reorient themselves to the astronomical realities the better. And science fiction is one of the most effective tools for this urgent job.*



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