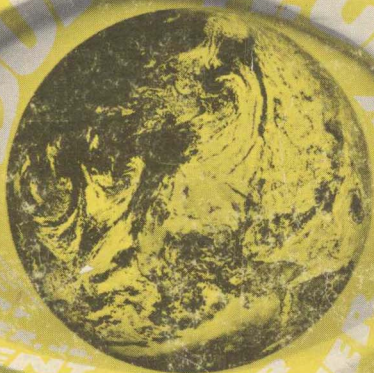


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SCIENCE FICTION

AN INTRODUCTION



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AN INTRODUCTION

including

Categories of Science Fiction

Analyses of Representative Novels

Toward a Definition of Science Fiction

A Way of Reading Science Fiction

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Verisimilitude in Science Fiction

Awards for Science Fiction

Selected Bibliography of Science Fiction

Selected Bibliography of Works about Science Fiction

by

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Categories of Science Fiction

Although it doesn't really prove anything, and although there are as many dangers to pigeon-holing as there are advantages, it is sometimes helpful to have some kind of categories and sub-categories to help one sort things out. It is important to remember that any label emphasizes a single aspect of a work and plays down all the rest of the work; consequently, if such labeling becomes an end in itself, rather than a momentary convenience, the richness and worth of the literary work is virtually destroyed. Furthermore, many sets of labels take no notice of gradations in emphasis, leaving little room for a work that is not purely one thing or another—and most literary works, or anything else for that matter, are not pure anything. Finally, any set of labels can be argued with and rejected by anyone with a different point-of-view. Even with these warnings, it is with some trepidation that the following set of categories for science fiction are offered.

The first category, then, might be called Hard Science Fiction. This would be science fiction in which the major impetus for the exploration which takes place is one of the so-called hard, or physical, sciences, including chemistry, physics, biology, astronomy, geology, and possibly mathematics, as well as the technology associated with, or growing out of, one of those sciences. Such sciences, and consequently any science fiction based on them, assume the existence of an orderly universe whose laws are regular and discoverable.

Under Hard Science Fiction, we can further divide stories into Gadget stories, Extrapolative stories, and Speculative stories. Gadget stories are those in which the main interest is in how some machine, or set of machines, work, or in the development of a machine or other technological device. There are, fortunately, very few of these around any more. Extrapolative stories are those which take current knowledge from one of the sciences and logically project what might be the next steps taken in that science; also included are those stories which take currently accepted knowledge or theory and either apply it in a new context

to show its implications or build a world around a particular set of facts. Speculative stories are generally projected farther into the future than Extrapolative stories, and consequently have some difficulty in projecting the logical development of a science; however, the sciences involved in such stories are similar to the sciences we know now and are based in them.

A second general category can be labeled Soft Science Fiction. This encompasses science fiction in which the major impetus for the exploration is one of the so-called soft sciences; that is, sciences focusing on human activities, most of which have not been fully accepted as being as rigorous or as capable of prediction as the physical sciences. Soft Science Fiction would include any stories based on such organized approaches to knowledge as sociology, psychology, anthropology, political science, historiography, theology, linguistics, and some approaches to myth. Stories about any technology related to these would also come under this heading. In this category, as well, the assumption of an orderly universe with regular, discoverable laws is a basic criterion for inclusion. As in Hard Science Fiction, under the category of Soft Science Fiction, we also have Extrapolative stories and Speculative stories; these types are defined in the same way that they were above, with the exception that they deal with "soft" sciences rather than hard.

A third category is Science Fantasy. Under this heading would go those stories which, assuming an orderly universe with regular and discoverable natural laws, propose that the natural laws are different from those we derive from our current sciences. What is sometimes called Paraphysics, but especially those branches dealing with telepathy and the laws of magic, most often provide these alternative laws. To qualify as Science Fantasy, it is necessary that these alternate laws receive at least a minimum of direct exploration.

The naming of the types under Science Fantasy is more difficult. One type might be called Alternative stories, where the underlying natural laws are of a different kind from those we know; telepathy and the laws of magic would belong here. Another type uses scientific information which has been shown incorrect at the time the story was written; it might, perhaps, be called Counter-Science Fantasy. Note that the science current

at the time a story is written must be taken into account in classifying, not the science current at the time one reads the story. The third type under Science Fantasy is, perhaps, a branch of Alternative stories, but it has traditionally been identified separately; this is Sword and Sorcery, which is primarily adventure, in which the culture requires the use of swords and other "primitive" weapons rather than modern weapons and, usually, the laws of magic operate in some way. Hopefully, these further subdivisions of what seem to be general categories of science fiction will help to determine what any work is doing and how it relates to other works that are also called science fiction; if they do not, they are worthless.

The final category, Fantasy, is somewhat controversial, for its connection with any of the sciences as such is minimal. Nevertheless, it borders on science fiction and helps round out this system of categories. As the term is used here, Fantasy has much in common with the other categories: it, too, assumes a universe which has order and a set of discoverable natural laws, even though they are different from our own. Unlike Science Fantasy, where these laws are treated explicitly, in Fantasy these laws are merely implicit; if the reader is sufficiently interested, he can formulate the laws governing this fantasy world, but the author gives him little or no assistance.

With these parameters sketched out, it will undoubtedly be helpful to apply them to particular examples. *Conjure Wife*, by Fritz Leiber, is perhaps as pure an example of Alternative Science Fantasy as we have available. That is, it looks at the laws of magic and defines their nature and how they work. Although the main character is a sociologist, this fact is used more as a characterizing device than as an active element in this novel; and although it is suggested that the women involved have psychological problems, these are approached as if their belief in magic and that they are witches are valid, without more than token reference to modern psychology. The only way in which this moves away from the point designated as Alternative Science Fantasy is in the introduction of symbolic logic as a means of bringing various magical formulas into several generalized formulas. However, this does not move it very far toward Hard Science Fiction, since the assumption of discoverable and

regular natural law would mean that the scientific method and mathematical manipulation could be used to determine those laws, whether or not they are different from those we know, since they are ways of approaching and working with any kind of regular data.

Another similar example is *The Incomplete Enchanter*, by deCamp and Pratt. It, too, studies the laws of magic, although by a more hit-and-miss method. Symbolic logic is introduced, but here it is used more as a vehicle than as a means of studying magic, so that along this axis the novel would not be quite as far toward Hard Science Fiction. However, along the axis between Science Fantasy and Soft Science Fiction, *The Incomplete Enchanter* would show the distinct difference between it and *Conjure Wife*, for it is more than a little interested in the effects that altered conditions have on people and the way they do things. Finally, this novel slips somewhat toward Sword and Sorcery, since the adventure element is quite strong; it is, however, used more as a vehicle for exploring the other elements than as a point of primary interest.

Most short stories and novels which might be called Counter-Science Fantasy use outdated scientific models in order to do other things more easily. One example of this is Roger Zelazny's "A Rose for Ecclesiastes." This is a very fine story. It belongs here because the portrait of Mars that it uses, particularly the idea that it can support life of a humanoid type and has a thin but breathable air supply, is not consistent with what we now know about Mars — and this was also known when Zelazny wrote the story. However, this is merely a convenience so that the first contact between different cultures, the nature of religions and the bringing of change, the role of language, and several other related points can be explored "purely" — that is, without having to worry about what we know of these things in a definite historical context, without having to worry about what actually did happen on Earth when two cultures met for the first time. The fact that there are a number of plausible technological devices included — spaceships, Mars buggies, etc. — would indicate a slight element of Hard Science Fiction, while the fact that most of the exploration is concerned with religion, psychology, culture and language would move this a long ways up the axis toward Soft

Science Fiction. In fact, the only reason that the point of reference is Counter-Science Fantasy is that the outdated model of Mars is necessary before any of the other elements can take form.

It is important to remember that what is known at the time the work was written must be a criterion. For example, much of the information provided about the planets in Asimov's Lucky Starr series is now outdated, and Asimov is among the first to admit it; however, at the time these books were written, that information was based on the best, most current, scientific information available to him. Consequently, these novels would have Hard Science Fiction as their basic reference point, rather than Counter-Science Fantasy.

Rite of Passage, by Alexei Panshin, seems to be largely Extrapolative Soft Science Fiction, since it takes known social institutions, governmental organizations, and psychological patterns, and projects them into an unusual situation. It would, however, be placed somewhat down the axis toward Speculative Hard Science Fiction because the spaceship, the scout ships, the space suits and the faster-than-light travel are basic to the story; they postulate advances in physics that cannot logically be deduced from current knowledge. (It might be noted here that faster-than-light travel is mathematically possible if non-Einsteinian postulates are used; however, at this time what evidence we have tends to support Einstein's theory.)

Frank Herbert's *Dune*, one of the most complex yet well-integrated works of science fiction yet written, seems to be almost equal portions of Hard Science Fiction, Soft Science Fiction, and Science Fantasy in its make-up. The basic reference point is probably Hard Science Fiction, but only because what seems to be the most satisfactory core question deals with the ecology of the planet Arrakis. Among the elements included in this aspect are the elements dealing with the planet, nearly all of which are extrapolated from current knowledge (even the sandworms are probable, based on what we know of Earth organisms of various types). The space travel, the suspensors, the weapon systems, the ornithopter, and various other gadgets also belong in the Hard Science category, although they are speculative rather than extrapolative; they do not make this Gadget science fiction, since little or no emphasis is placed on them in

themselves. Those elements which constitute the Soft Science angle include the various approaches to religion, the various approaches to physical and mental training, the Fremmen way of life, the political maneuvering on the various scales, Paul's psychological development, and many other related details. Most of these things seem to be based on current knowledge, which is extrapolated and recombined.

The various powers that Paul develops in the course of this book, the powers of his sister, his mother, the Space Guild, and the Bene Gesserit all seem to belong under Alternative Science Fantasy, simply because they deal with things that we have very little information or solid, verified knowledge of. All of these elements are important in the telling of this story, and they are so well integrated that any one of them affects several others directly, and more indirectly. One example of this would be the course of Paul's development: had he not been moved to Arrakis (political), he would not have been confronted by the conditions of the planet (ecology) and thus would not have been under any pressure to develop his trained abilities (soft sciences are involved) nor to develop his natural powers (sight of the future—alternative sciences); in the course of the novel, it is difficult to point to any event, however small, and conclude that only one of these things is present.

The examples are endless, and more and more science fiction is being published every day. Nevertheless, it can be safely generalized that, as the field stands now, nearly every story will contain some combination of two of these categories, and most will be a combination of Hard Science Fiction and Soft Science Fiction, since (historically, at least) science fiction has primarily been interested in tracing the human effects of scientific advances and devices. Of course, when the interest is in such things as the possible workability of magic, then the combination will be between Alternative Science Fantasy and Soft Science Fiction, for a part of the emphasis will still be on the human effects of such advances or changes. Once again, it is the thinking about books and stories that is necessary to put them into such categories that is important, not the categories themselves. At best, categories are stimuli to thinking, helps in determining major functions, and aides in comparing; at worst, they destroy the literary work.

Before leaving this topic, there is one further group of works that border on science fiction that should be mentioned; usually these works are lumped under the heading of New Wave. This is an almost impossible title, for it means something different to almost every individual who uses it. In practice, almost every work which uses science fiction devices, stories, approaches, etc., differently than they have been used in the past is labeled New Wave at some time or another. It is possible, however, to break New Wave into two basic groups; one of these groups is primarily concerned with experimenting with new stylistic techniques within the field of science fiction, while the other group combines such experimentation with the assumption that there is no inherent order in the universe we live in, or at least what order there is is not amenable to study and discover, through the scientific method. Although the first of these groups may provoke the science fiction traditionalists, works which are involved will nevertheless fall into science fiction proper and can be handled by the categories discussed above. The second group, however, should not, at this time at least, be considered as falling within the scope of science fiction; no matter how much similarity there may otherwise be, for this group of works denies the basic premise of science and of science fiction—that is, the assumption that there is an inherent order in the universe and that this order can be discovered through the scientific method and expressed as natural law is absolutely essential, for without this order and this kind of discoverability, science is not possible. This is not to say that this kind of fiction is bad or uninteresting or irrelevant—much of it is very good, very interesting, and very relevant—it is simply not science fiction, but rather constitutes another sub-genre under the general heading of fiction. It is not simply the devices and the conventions that make science fiction what it is; the underlying assumptions, the embodied intent, and the approach to the material are also important.

Analyses of Representative Novels

INTRODUCTION

In the following pages, thirteen science fiction novels representing each of the three main categories of science fiction and combinations of them have been discussed at some length. In addition to these, four other novels and one short story have been discussed in the preceding materials. Choosing seventeen novels from the many good ones available was, of course, difficult and, in many ways, rather arbitrary, though there were some guidelines behind the choices. Historical interest and importance was one of these, particularly in the case of *20,000 Leagues Under the Sea* and *The Time Machine*. In addition, most of those works published after 1952 were winners of awards for excellence; of those that were not, their exemplification of a particular approach to science fiction was an important factor. Finally, the ease with which the works could be found in libraries and bookstores made some difference, though at this writing *The Demolished Man* and *Mission of Gravity* are quite hard to find; their excellence as a type determined their inclusion. Nevertheless, even with these guidelines, choices had to be made, and they were ultimately personal ones.

A few words about the categories of science fiction and the relationships between these works and those categories might be helpful in placing the novels discussed in some sort of overall perspective. In addition, a few comments about A. Merritt, whose best and most important works have been virtually impossible to find at this time, can be made to complement Verne and Wells.

Jules Verne is quite clearly the first writer for whom the wonders of science and scientific discovery as they stood during his time were sufficient in themselves. *20,000 Leagues Under the Sea* is probably his best novel; it is certainly his most popular. In this novel, and in many of his others, he was quite careful to include only those things which were possible according to

scientific knowledge and theory of his own time; a large portion of this was accepted as scientific fact in 1870. Because of this, Verne can be said to be the archetypal practitioner of Extrapolative Hard Science Fiction. Hal Clement is probably the best and most consistent descendent from Verne; as noted, there are very few elements of speculative science involved in *Mission of Gravity*, and these are part of the background. As a matter of fact, such elements may be necessary in the modern practice of Extrapolative Hard Science Fiction, for there are few areas on Earth that remain as full of exciting possibilities as the sea was in Verne's time, but we have yet to invent the means of getting to other places in the universe where these wonders and possibilities and applications still exist.

The Time Machine was Wells' first novel, and one of his best. With it, the divergence from the "school" of science fiction headed by Verne was clearly marked. In it, science was used to make possible an exploration of the results of the trends in the social system of the time. The science was imaginary and speculative, though it sounded plausible, but the sociology was extrapolated from trends of the times according to accepted means of interpreting society. Thus, Wells can be said to be the archetypal practitioner of Extrapolative Soft Science Fiction. Many of the novels discussed here show definite relationships with this approach, but *Rite of Passage* seems to be the one which is closest to Wells' practice in *The Time Machine*. It, too, uses an imaginary, speculative science to create a situation in which social and psychological developments and changes can be observed, although the bases for the extrapolations are not always as easy to illustrate as they are in Wells.

Two kinds of writing seem to be related to A. Merritt's work, for whereas Verne viewed the unexplored places on Earth as a scientific gold mine, A. Merritt viewed them as possible resting places for greater beings than man. In many of his stories, particularly in his best novel, *The Moon Pool* (1919), he is concerned with the conflict between good and evil, between light and darkness. Some of his creatures of evil are totally repulsive, even from the printed page, while some of his creatures of good verge on the awe-inspiring. When these aspects of his work are applied to other stories, the result is the tale of supernatural horror, such

as those written by H. P. Lovecraft. However, Merritt's work is not primarily horror stories, though there are definite elements of horror in them, for an element of science is also present. In *The Moon Pool*, for example, the main character is a scientist on a scientific mission; he discovers the remains of a much older civilization and becomes enmeshed with it. Furthermore, although they are not given the most prominent place in his work, most of the phenomena encountered have discoverable causes and results. Because these elements are also present, it seems reasonable to consider A. Merritt as the archetypal practitioner of Science Fantasy. *Conjure Wife* is probably the work discussed in this study that is closest to *The Moon Pool*, though there are significant differences between them. Much of the action of *The Moon Pool* takes place below ground, in the ancient kingdom, while *Conjure Wife* makes a point of remaining within the everyday world. Nevertheless, the attitude and the intent of these two works is very much alike.

The other novels discussed here are mixtures of Hard Science Fiction and Soft Science Fiction, for the most part, with the proportion of each fluctuating from work to work. In some of them, such as *Dune*, there may also be a strong element of Science Fantasy included. All of them, however, are excellent reading, and there should be something here to meet nearly any taste among potential readers of science fiction.

Extended analyses of these works is, of course, impossible to do briefly. Consequently, these discussions are intended to be suggestive rather than definitive, to touch on some of those points which are basic to understanding the book and on some of the more interesting aspects of the development of the motivating idea. As a result, the approach taken to each book and the kinds of materials discussed have been determined largely by the books themselves rather than by any consistent critical format. It is hoped, then, that these discussions can provide a basic guide for choosing books to read, a help in reading them, and a stimulus to discussion and further thought about them.

20,000 LEAGUES UNDER THE SEA

Jules Verne

1870

It is easy enough to understand why this novel was received with such enthusiasm when it was first published, for it seems to have introduced many readers to a new kind of world, one which most of them would have had little opportunity to have known very much about at all. And although this novel probably cannot be said to be the first science fiction novel, it did approach its topic in a way that had not been taken before, for everything that Verne included here was valid according to the scientific knowledge and theory current in 1870. It is this last quality, and the character of Captain Nemo, that makes *20,000 Leagues Under the Sea* important in the history of science fiction: it is the first example of strict hard science fiction. Certainly, the novel has lost much of the sense of wonder that it once possessed; the documentary films of Jacques Costeau have done much to bring the wonders of the underwater world into the living rooms of millions of people in the 1970s, just as Jules Verne did one hundred years earlier. (It is interesting to note that these two Frenchmen have probably done more to stimulate the study of the sea than anyone else.) Thus, although it lacks some of the staying power that most of the work of H. G. Wells has had, *20,000 Leagues Under the Sea* is one of the classics of science fiction.

The story begins when Professor Aronnax, his servant Conseil, and the harpooner Ned Land are swept overboard from the *Abraham Lincoln*, which was commissioned by the United States government to hunt a large "thing" in the sea, which various opinions had thought to be an island, a mechanical marvel, and a previously unknown, unusually large cetacean, with Aronnax holding the latter opinion. Just before these members of the expedition aboard the *Abraham Lincoln* had been thrown overboard, however, they had learned that this was in error and that it was instead a man-made machine. After floating about, they drift up against this marvel. Shortly thereafter, it begins to submerge, taking them with it; however, it stops in time and they

are rather roughly brought on board and placed in a dark room for a time. Eventually they meet the captain of the vessel, Captain Nemo; he informs them that he has broken all ties with land, existing only on what the sea provides. His choice, he proclaims, is either to kill them or to keep them aboard with him until they die, for he wants no one to know about himself and his vessel. Fortunately for them, he decides that he will take them along with him on his voyages around the world under the sea.

From this point on, the main action of the story is movement from place to place in the world and the incidents, accidents, and adventures that happen in some of those places. When they are initially picked up they are some two hundred miles off the coast of Japan; by the time they finally escape they have travelled twenty thousand leagues in this ship, ending near the Lofoten Islands off the coast of Norway. For a good while after they are picked up, however, much of their attention focuses on the ship itself and on the marvels to be seen outside their windows. The first notable event is a trip through an underwater "forest" off the Isle of Crespo. During this excursion, they kill a sea otter and a large albatross diving toward the surface, as well as barely escaping the notice of a couple of sharks. From here, their journey takes them toward the Indian Ocean; passing through the Torres Straits, however, the *Nautilus* is caught on a reef. While they are waiting for the higher tide that comes with full moon, Aronnax, Conseil, and Ned are able to once more spend some time on land, exploring and hunting. On their final visit, however, they are attacked by savages, who chase them back to the boat and, next morning, explore the outsides, waiting for someone to come out. They even try to enter, but electric shock holds them off and they retreat, just in time for the *Nautilus* to resume its journey. Following this, there is an incident with another ship, during which Aronnax, Conseil, and Ned are kept locked up, until Aronnax is asked to treat a wounded sailor.

The next stop is for an expedition out of the ship to a large coral growth, an area which Captain Nemo has made into a graveyard for fallen comrades. Later, they visit the pearl fisheries off Ceylon, where they see a gigantic pearl, Captain Nemo's private treasure; during this excursion, Ned Land saves Captain Nemo from a shark after Captain Nemo saves a pearl diver.