This paper suggests that now that science fiction has joined the educational establishment there is good reason to examine the uses of science fiction. It is further argued that if English teachers consider science fiction as a means rather than as an end, the teaching of science fiction will be improved and so will the more important tasks of teaching reading and writing. In conjunction with this philosophy, several science fiction anthologies are analyzed for their content and applicability to the task of teaching English, especially in the area of basic skills. (RB)
The Status of Science Fiction Anthologies and their Applicability to Teaching

Seven years ago Mark Hillegas reported on successful science fiction courses he had offered but concluded that because of the nature of English departments he saw little hope for regular courses in sf. Today, Jack Williamson reports that over four hundred sf courses are being offered at the college level, and Luna Monthly editor Ann Dietz comments that grade school English departments across the country are including sf studies and are swamping her with requests for free materials.

It is not my purpose to explain what has happened during the past few years; I intend, rather, to suggest that now that sf has joined the educational establishment there is good reason to examine critically and imaginatively the full range of uses to which it is being and can be put. I am not suggesting that courses on the backgrounds, history, and contemporary variations of sf be abandoned. My position is that if English teachers consider sf as a means rather than as an end, we will strengthen both our teaching of sf and our handling of other, more important tasks entrusted to us.

Some progress has already been made in finding new ways to use sf. Patrick Hogan has suggested that one could profitably include sf in a standard literature course or couple a sf novel or story with a non-sf work to which it is related. Another approach has been to use sf to study some topic in its own right. Courses on religion and futurology whose reading lists consisted of sf works have received publicity, and along with them can be cited courses on Women's Literature and Apocalyptic Literature that have relied at least in part on sf.

But until recently our profession has done little with sf in teaching the basic skills of reading and writing. Only within the past year has there been available a text (Those Who Can: A Science Fiction Reader) illustrating such staples of the introduction to literature course as Plot and Setting with sf stories. And even this innovative text is geared, as its introductions and notes disclose, for the student of literature not for the writer.

I am not suggesting that texts like the Norton Reader should be revised to include a large percentage of sf. Teaching expository writing will surely suffer if creative work is too frequently used as a model—if only because too many students will decide that it is easier to "just write a story" than to go through the bothersome steps of thesis statement, topic sentence, and concrete examples. But sf can be an effective part of a more comprehensive approach to teaching expository writing. The main concern of most significant science fiction has been exposition's staple: ideas. From The Time Machine with its comments on the split between rich and poor to The Gods Themselves' ideas on the responsibility of science to insure its discoveries are properly used, sf writers have treated the issues that have dominated texts intended for the freshman course in writing.
Further, as a result of sf's concern with ideas, nearly every anthology contains models of good expository writing. If, for example, a teacher wants to deal with cause and effect, he can concentrate on the section of Asimov's "Runaround" from which the following is excerpted:

"We'll say that a robot is walking into danger and knows it. The automatic potential that Rule 3 sets up turns him back. But suppose you order him to walk into that danger. In that case, Rule 2 sets up a counterpotential higher than the previous one and the robot follows orders at the risk of existence...."

"There's some sort of danger centering at the selenium pool. It increases as he approaches, and at a certain distance from it the Rule 3 potential, unusually high to start with, exactly balances the Rule 2 potential, unusually low to start with...."

"And it strikes an equilibrium. I see. Rule 3 drives him back and Rule 2 drives him forward--"

"So he follows a circle around the selenium pool, staying on the locus of all points of potential equilibrium."

But it is in the research paper that I have found sf to be particularly useful, both as a model and as a subject. Such sf novels as Ursula LeGuin's The Left Hand of Darkness and Walter Miller's A Canticle for Leibowitz are excellent examples of how skilled writers consult and order the work of others to improve their own.

More importantly, sf can furnish students with topics for research papers of their own. Authors like George Orwell (1984), Aldous Huxley (Brave New World, Ape and Essence), Eugene Zamiatin (We), C. S. Lewis (Out of the Silent Planet, Perelandra, That Hideous Strength) and Kurt Vonnegut (Player Piano, The Sirens of Titan, etc.) have received enough critical attention that a student who wants to survey opinions and form his own from them will encounter difficulty in doing so. And the list can be expanded through the inclusions of writers of Fantasy (J. R. R. Tolkien), the macabre (Edgar Allan Poe), and utopias (Thomas More) and earlier writers like Mary Shelley and Nathaniel Hawthorne considered precursors of sf. But should one want to write on other topics (even on such major authors as Theodore Sturgeon or Arthur C. Clarke), he will have to be prepared to rely on primary sources, for the bulk of sf simply has not been subjected to large-scale study.

The greatest strength of this second type of research paper is that it involves the student not simply in evaluating others' conclusions but in formulating and testing his own. The greatest weakness is that, finding no outside support, many students allow themselves to be swamped by the story-lines and write nothing but a series of plot summaries. A teacher simply cannot suggest that a student impressed by Stranger in a Strange Land or Childhood's
and should read more Heinlein or Clarke and find a topic. The teacher must be familiar enough with the material to respond to general ideas with suggestions for possible approaches and a list of relevant readings.

Suggesting an approach is not too difficult; for in so far as it is fiction, sf follows the same rules as any other literary type. But providing a list of readings can be most frustrating. Few libraries have enough sf novels for everyone in even a small class to deal with several variations on a theme or several books by one author. Another problem is that many novels must do double duty. Considerable logistics are necessary if, for example, the student examining the post-catastrophe novel and those writing on religion or mutation are to have access to A Canticle for Leibowitz. Ordering books during the term has always proved a pseudo-solution for me. Paperbacks due in two weeks show up in time for summer school; and titles move in and out of print with an almost malicious abandon. Another possible approach is to assign topics, but I have avoided this because instead of taking advantage of sf's proven ability to interest a student in defining and solving a problem, it simply functions as a disguised test, one more problem set by the teacher for the student to puzzle out.

As an alternative, I suggest that students investigate sf in its briefer forms. The advantages are many. A single anthology--costing no more than a single novel--can contain as many as forty stories. Each story can be read quickly enough that every student will have access to what he needs. Further, in the time that a student would have to devote to reading four or five novels he should be able to cover twenty or thirty shorter pieces and get a better view of the variations possible on a single topic. Finally, if a teacher uses an anthology of shorter sf works as part of the required reading for a course, he will find it easy to integrate work done in class with the research paper. A good anthology can help the student to learn to categorize the various approaches to a topic and give him a place to begin his search for materials.

The principal problem in choosing an anthology today is finding the time to consider and choose from the possible candidates. The sf section of a bookstore can contain as many as five books claiming to contain the Best Science Fiction of a given year, anthologies of original stories, and collections of stories on one topic, stories which have received awards, or stories that summarize the history of sf. Enriching the selection further are anthologies the publishing houses specifically intend for classroom use.

Two of the best history-of-sf anthologies are The Mirror of Infinity, ed. Robert Silverberg and A Spectrum of Worlds, ed. Thomas Clareson. Through the notes which Clareson appends to each story and the forwards with which different critics introduce each story in Silverberg's text, the student is introduced to most of the major themes of sf. But despite their skill in tracing sf's history and literary value, both texts contain too few
stories (fourteen and thirteen respectively) to demonstrate in detail the variations possible on any of the major themes they outline. Nor do I think it enough simply to choose the anthology with the most stories. Famous Science Fiction Stories contains thirty-five stories but all pre-date 1946; and the picture they give of SF is simply no longer adequate.

If a teacher wants a chronologically arranged text that furnishes a large number of stories, either the Science Fiction Hall of Fame, Vol. 1 or The Hugo Winners would be better choices. The Science Fiction Writers of America voted the twenty-six stories in the Hall of Fame the best SF stories of the era ending December 31, 1964; three stories were written in the 30's, eleven in the 40's, eleven in the 50's, and one in the 60's. The Hugo Winners gives a fuller picture of more recent writing. Fifteen of its twenty-three stories were written in the 60's and the remaining eight are from the 1955-59 period represented in the Hall of Fame by only two stories.

But before selecting either or both of these anthologies, a teacher should be warned that their chronological arrangement and lack of notes make it difficult to identify all the stories on a particular topic. And, while a teacher can remedy this simply by announcing that stories A and B deal with topic one, he cannot remove from the stories the subtlety that makes them good but which also makes it difficult for the student who has not dealt first with simpler stories to establish for himself exactly what a particular story says on a given topic. For this reason, I suggest that, while each student should be encouraged to use the stories from these anthologies that deal with his topic, an anthology with stories grouped by subject matter should be selected as the primary text/Resource book.

Most single-subject anthologies are produced for general distribution and include no apparatus other than short headnotes and a two or three page introduction. These anthologies are generally unified by a common plot pattern like time travel or a meeting with alien beings; more useful in an academic situation are those whose stories deal with a common topic. The best I have found in this latter group are Beyond Control, dealing with technology, and Mind to Mind, dealing with ESP. Great Science Fiction About Doctors. Also deserving notice are two volumes specifically intended for the classroom: Transformations: Understanding World History Through Science Fiction and Present Imperfect: Facets of the Utopian Vision. If, however, a teacher decides that his students should be allowed to choose from a range of topics, he should consider anthologies that group stories under several headings.

Although I have not examined every topically-arranged anthology, I have dealt with nearly twenty of them. But rather than trying to discuss each in detail, I have included information about them in an appendix and will limit myself to the two questions that
should be asked of each: "Is there an adequate range of significant and interesting subjects represented?" and "Is each subject covered thoroughly and from a variety of viewpoints?"

The stories, poems, and essays in Science Fiction: The Future introduce the student to the main topics of sf but cover none of them in depth; most valuable are the essays on the history and present status of sf. A good research paper could result from a student's testing the ideas of one of these essays against his own reading; but the materials in Science Fiction: The Future are also inadequate for this and would have to be supplemented.

While none of them contains as much criticism of sf as Science Fiction: The Future, Survival Printout, The New Prometheans, Dimensions of the Future, and Science Fact/Fiction have followed its lead and mixed fictional and non-fictional discussion. Any one of these anthologies can introduce students to subjects relying on secondary materials—those topics of interest in themselves (prosthetics and artificial intelligence, for example) and those involving the relationship between science fact and science fiction. But when judged by the standards I have outlined, they differ widely.

Although Dimensions of the Future covers a wide range of topics, only five of thirteen sections contain fiction; forty-one of the forty-nine selections are non-fiction and the excerpts from Island, Walden Two, and Proposition Thirty-One are not truly sf. Survival Printout covers only four areas, but each topic is too all-encompassing. "Earth Probabilities," for example, contains stories on over-population, the automobile and its effects on society, and the computer along with Arthur C. Clarke's essay "The Social Consequences of Communications Satellites."

Both The New Prometheans and Science Fact/Fiction measure up better, with the latter holding an edge. The New Prometheans covers its five topics thoroughly and devotes two of its units to genetic and behavioral engineering, more interesting and more controversial topics than most anthologies include. But the emphasis on non-fiction is so high (nineteen essays out of thirty-three selections) that the unit on genetic engineering contains only two stories (out of six selections) and 2/3 of the pages devoted to behavioral engineering are non-fiction. Science Fact/Fiction, in contrast, includes only one piece of non-fiction in seven of its eight sections and devotes more than ninety per-cent of its pages to stories, poems, and a play. The materials chosen are excellent, although the titles given to the various sections tend to be somewhat allusive. The anthology provides well-rounded views of major themes like contact with aliens, man and machine, and life after a natural or man-made disaster, juxtaposing well-written stories that are easy to understand with more complex ones that reward the reader who takes the trouble to understand them. And the one section illustrating a plot pattern (time travel) ranges from space opera to humor and from Marion Gross's "The Good Provider," the story of the love of two old people for each other, to "A Sound of Thunder," Ray Bradbury's parable on the inter-relatedness
of things. The teacher's manual is above-average and the text's study questions illuminate each story in itself and in relation to the rest of the unit.

But Science Fact/Fiction is not the only anthology worthy of consideration; several excellent ones are to be found among the thematically-arranged anthologies that exclude non-fiction. Four of the seven units of themes in Science Fiction are strong, but "Tomorrow," "Cuter Space," and "Special Talents" lack a central focus. Science Fiction features an excellent teacher's manual and representative stories on "Fan and Machine," "Totalitarian Worlds," and "The Winners." But "Space Travel," "Invasions," and "Other Creatures, Other Worlds" rely too heavily on poem by writers like Ted Hughes and Sylvia Plath; and "Strange Journeys" has neither unity of theme nor of plot since the three trips are through time, through space, and through dimensions.

Choosing a text from the five that remain in this category is really a matter of an individual's deciding which stories he can work with best. Man Unwont combines science and fantasy fiction to provide five different approaches to each of four carefully defined and limited topics. But in their detailed accounts of the ways the selections in a unit fit together, the editors risk convincing students that no other relationships are possible. Tomorrow, and Tomorrow, and Tomorrow... is a simple text; its only apparatus is a ten-page introduction to sf. Two of its ten sections ("Fantasy" and "Time Manipulation") contain only two stories and two others ("Science" and "The Future") are too general. But the other sections are made up of well-chosen stories and two are particularly interesting for what they do with two generally-ignored areas—"Humor" and "Muder Mysteries."

Two units in Above the Human Landscape are among those usually encountered—"Technology" and "Tomorrow," and both provide good cross-sections. The remaining three units view sf from a sociologically-based perspective and deal with the relationships between People and Community, Systems, and Reality. The section which provides six answers to the "What is really real?" question is a difficult one; but the other two succeed in concretizing abstract and often difficult concepts. "Communities are for People" combines the Edenic simplicity of Bradbury's "The Highway" and the nostalgic pictures of a simpler America found in Fredric Brown's "The Scoveries" and Chad Oliver's "Mother of Necessity" with two chilling views of what it means to be old (Kit Reed's "Golden Acres") or black (Robert Silverberg's "Black is Beautiful") to evoke the desire to belong which each man experiences but which no man ever fully satisfies.

Speculations offer more material than any of the other anthologies considered (forty-one stories and twenty-seven poems) and a teacher's manual that devotes attention to every selection in itself but which fails to tie them together. The anthology provides two indices, with the one devoted to topics affording some possibilities other anthologies seem to overlook.
As Tomorrow Becomes Today distributes thirty stories over nine topics and, though the unit on World War III contains only one story and a four-line poem, constructs several sections which cover their topic thoroughly and provide the teacher with the opportunity to move through progressively more difficult stories. In the unit called "Man: Himself and Aliens," Robert Shakesley ("Specialist") and Arthur C. Clarke ("The Sentinel") examine man's position in the universe; Cordwainer Smith ("The Game of Rat and Dragon"), Joseph Green ("The Decision Makers"), Clifford Simak ("A Death in the House"), and Shakesley explore how man might relate to other intelligent life forms. Man is shown both as a creature of immense power tapped only when he encounters aliens and as a child seeking admission into an adult universe he has almost no knowledge of; the aliens, though resembling cats, dogs, and plants teach man something of love, devotion, and generosity. The editors suggest that the stories can be presented according to their setting: Earth (Simak), space (Shakesley and Smith), and other planets (Clarke and Green). But it would be equally valid to begin with Clarke or Smith (since both use the last line of their stories as the punch line) and then treat the progressively more ambiguous works of Simak, Green, and Shakesley since the themes of all the stories are intertwined.

But even the best anthology cannot present a full range of selections on every topic; for there are simply too many topics. For example, Themes in Science Fiction does not have a separate unit on Love and Friendship, but the topic is present in ten of its thirty-one stories; the same is true of Violence (nine stories), Humor (seven stories), Prejudice (six stories), and Death (six stories). So while concentrating on the various approaches to each topic, a teacher must also be sure to point out ideas, plot devices, and themes which will play more important roles in other sections of the anthology (perhaps reserving one section or certain stories for the students to analyze on their own) or which are worth investigating in stories not included in the anthology.

Anyone can easily construct a list of topics treated in sf on the basis of his own reading, but as a guide I have included the list I developed for my classes. It is by no means perfect. Topics like "Travel Through Solids" and "Fatter/anti-Fatter" are rarely necessary; "Man vs. Machine" and "Science or Technology vs. Humanism" overlapped; and "Man's Unconquerable Spirit" should be divided into individual heroism and man's survival as a species. But at least this is a beginning which others can refine as necessary; and so that each may judge its adequacy for himself, I have included my analysis of the best of the anthologies discussed earlier.

In addition, I have included analyses of several more specialized volumes. My reasons are two: unless a student chooses a subject widely represented in topically-arranged anthologies, he will waste a considerable amount of time simply looking for materials; and no matter what the topic, a student will profit from examining stories found in collections of different sorts.

The anthologies discussed previously limit themselves for the
most part of English and American authors. But while such writers have dominated the field, they have not monopolized it; and foreign authors frequently approach SF with entirely different notions about what it is and what it is to be used for. Although some of the translations are poor, the spirit comes through clearly in collections of European SF like Other Worlds, Other Seas, View From Another Shore, and Thirteen French Science Fiction Stories. And SF from the Soviet Union is even more widely represented. Robert Magidoff has edited three collections (Russian Science Fiction, 1964, 1968, and 1969) and Isaac Asimov two (Soviet Science Fiction and More Soviet Science Fiction). Also available are Judith Merril's Path into the Unknown and Mirra Ginsburg's The Ultimate Threshold, among others.

Other interesting differences appear when SF from earlier periods is compared with that written since World War Two. Many of the collections already mentioned have at least a few such stories, but some anthologies specialize in them. Future Perfect concentrates on nineteenth-century American fantastic writing, discussing works of writers like Hawthorne, Poe, Melville, Bierce, and Bellamy on topics like time travel, medicine, and psychology. Science Fiction by Gaslight selects stories published in popular English and American magazines between 1891 and 1911 and groups them under the headings noted in the appendix. Before the Golden Age gathers twenty-six stories (including several by Silak, Leinster, Williamson, and Asimov) which appeared in SF magazines between 1931 and 1938.

In fact, nearly every anthology offers additional possible topics to the alert student or teacher. A student might examine yearly collections of SF to see whether a subject is handled the same way in two different years or do the same with collections from one magazine for two different years or with collections published in the same year by two or more magazines. The Light Fantastic collects SF stories by mainstream writers like Graham Greene, E. B. White, and John Cheever, suggesting the value of comparing the way such writers and writers from the SF tradition respond to a particular topic. Or one could follow the same procedure with Great Science Fiction by Scientists.

Science Fiction is an interesting and diverse field which will reward the type of study I have been outlining, and I trust my presentation has not been so filled with names and numbers as to hide this. If it has, perhaps the list of categories and the analysis of the anthologies will right the balance. I invite suggestions about the categories that should be listed, anthologies that ought to be included, and the categories applied to particular stories; I will be happy to supply further information to anyone who wants it. Thank you for your attention.

Bibliographic material is obtainable from the author of this article.
NOTES


9. As Tomorrow Becomes Today, p. 256. The teacher's manual suggests even more possibilities. Overall, the manual is the best I have seen.

10. As Tomorrow Becomes Today, p. 256.