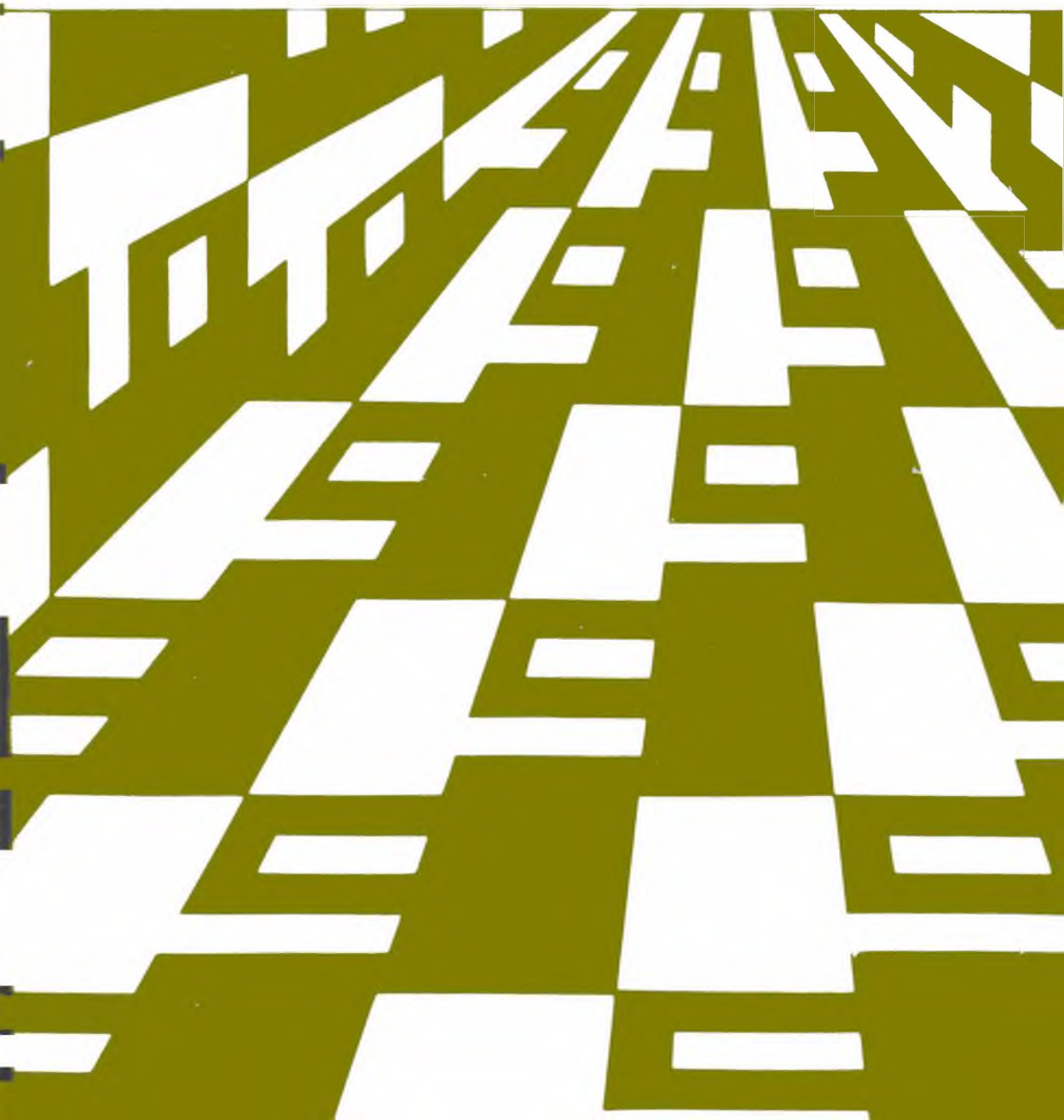
$5.00

FALL 1986 Vol. 27, No. 3

EXTRAPOLATION



EXTRAPOLATION

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EXTRAPOLATION is published quarterly by The Kent State University Press, Kent, Ohio 44242.

Subscription rates: $15 one year, $28 two years individual; $25 one year, $48 two years institutional; add $3 per year for foreign. Single copy, $5.

Address all inquiries concerning subscriptions to The Kent State University Press, Journals Department, Kent, Ohio 44242. Notice of nonreceipt of an issue must be sent to The Kent State University Press within three months of the date of publication. Changes of address should be sent to this office by the tenth of the month preceding the month of publication.

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Extrapolation, Vol. 27, No. 3
0014-5483 86 0273 $01.00 0

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FALL 1986 **Vol. 27, No. 3**

	182	Contributors
	183	Launching Pad
KATHLEEN McCORMACK	185	George Eliot and Victorian Science Fiction: *Daniel Deronda* as Alternate History
DENNIS CHASE	197	The Ambiguity of Innocence: *The Turn of the Screw*
TONY MAGISTRALE	203	"More Demon Than Man": Melville's Ahab as Gothic Villain
BENJAMIN S. LAWSON	208	The Time and Place of Edgar Rice Burroughs's Early Martian Trilogy
MICHAEL ORTH	221	Utopia in the Pulps: The Apocalyptic Pastoralism of Edgar Rice Burroughs
DEBORAH BYRD	234	Gynocentric Mythmaking in Joan Vinge's *The Snow Queen*
LILA M. HARPER	245	Mathematical Themes in Science Fiction
	272	Star Cluster
	274	Books
	276	Notes and Queries

ISSN: 0014-5483

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THE LAUNCHING PAD

■ The International Association for the Fantastic in the Arts (IAFA) meeting at the Hobby Hilton in Houston in March went extremely well, although for some unaccountable reason I have not yet received the issue of *Fantasy Review* which reported the meeting. I have gotten some xeroxed pages, while the articles by Rosemary Herbert in *Publisher's Weekly* (May 23, 1986) indicate that, properly reported, such meetings can find a prominent place in the non-specialist press. Certainly Bob Collins, Roger Schlobin, and GOH Brian Aldiss deserved their respective awards because together with current president Marshall Tymn—they have made IAFA work.

The only thing that bothered me about IAFA—and it is certainly no criticism of the organization or of the meeting itself—was the number of familiar faces which I had seen at SFRA and MLA and fully expect to see in San Diego at the end of June. I believe that I have told some of you at least of the controversy during the period between the 1920s and 1940s between two distinguished professors of English at different prestigious eastern schools who did not speak to one another for some twenty years because they disagreed as to the proper interpretation of Henry James's *The Turn of the Screw*. Science fiction criticism has seen a number of such splits—many of them in fandom during the middle decades of the century and, of course, the differences in personality and ideology which led to the formation of *Science-Fiction Studies* in the mid-1970s. These reflections take into account primarily American groups, and at least seem to overlook the British *Foundation*, whose exact situation I confess I do not completely understand, though I hope to after Alice and I visit Britain in the winter and spring of 1987. Then there is World Science Fiction, to say nothing of the innumerable "cons" which seem to meet every weekend somewhere in America. (I regret missing the World Science Fiction meeting in Vancouver, although a recent blurb suggests that there will be another in Yugoslavia, if I recall correctly.)

To turn to the United States for a moment. It seems to me that academi-

cally, there are now three major meetings each year: SFRA, IAFA, and the Eaton Conference at Riverside. I can imagine what some of you may expect me to suggest, but you've guessed wrong. No, I do not think that these groups should coalesce into one giant, monopolistic organization. Nor do I think that they should compete to be *the* number one organization in the field. (In mid-May I attended Marcon XXI at Columbus—a pleasant regional conference primarily of fans and some writers—and was amused by the occasional heated discussions of the New York and Los Angeles blocs that apparently dominate SFWA activities.)

What I would wish for is a greater cooperation among the three academic groups mentioned, a cooperation which seems the more possible to me because the participants overlap to a large degree. (To understand my point, look at the persons quoted in Rosemary Herbert's articles in *Publisher's Weekly;* since she told me that she was doing the article free-lance, it seems to me that the meeting at which those interviews took place could be any of a number.) I do not know of a method to secure that cooperation, perhaps because I have not been an officer in any of the organizations recently. Several factors which make me think there could and should be cooperation among the three involve the need (still) to undertake a wide variety of work in the field without undue repetition and redundancy. In this regard, after listening to various papers and considering articles submitted to *Extrapolation* and published there and in other journals, I find the same topics and the same authors dealt with time and again. The consequence of this is that a number of important early writers—both inside and outside the specialist magazines—are being ignored. Despite the depositing of papers at various libraries by contemporary writers, I think a great many personal papers are finding their way into oblivion, to say nothing of the publishing records—which calls up a number of horror stories in which I won't indulge. Sufficient to say that they parallel the thoughtless destruction of old files of letters and records which took place in Britain after the end of World War II. A third factor that increasingly bothers me is that I am ever more uncertain that science fiction is a distinctly separate genre instead of one chief current of a fantasy that parallels social realism/naturalism.

Several months ago Gene Wolfe wrote me suggesting that the ill-named "mainstream" of modern fiction, beginning in the eighteenth century, was indeed the lesser tradition, while the main current involved fantasy and the epic and dated back to the beginnings of human civilization. I am not going to debate that issue with him; in fact, essentially, I agree. Storytelling involving fantasy and the epic is at the root of the human experience. The self-consciousness of the eighteenth century—spurred on by the Royal Societies—began an introspection concentrating on the individual and the nature of society itself which was torn between the vision of

(continued on page 270)

George Eliot and Victorian Science Fiction: *Daniel Deronda* as Alternate History

KATHLEEN McCORMACK

■ The later works of some of our greatest writers often have a strangeness that depends partly on far-distant settings in place or time. Poised to confront the otherworldly in the most direct way possible, William Shakespeare, Alfred Tennyson, and George Eliot, for example, disoriented their contemporary audiences with hints of otherworldliness in *The Tempest*, some of the later tales in *Idylls of the King*, and *Daniel Deronda*, Eliot's last novel. Although the utopianism of works like these often puzzles and disturbs readers, the distant settings also help pinpoint their strangeness by identifying the works as romantic literature—even in the case of Eliot, usually considered one of the nineteenth century's ardent exponents of critical and artistic realism.

The mixture of genres in *Deronda* has provoked many attempts to sort out the strains of epic, myth, drama, and allegory that mingle in its capacious and mysterious form.[1] Indeed, even more frequently than Eliot's overtly Gothic short story, "The Lifted Veil," this novel has provided the main text for discussion of the degree and kind of Eliot's romanticism.[2] And while I certainly am not going to argue that George Eliot wrote science fiction, I would suggest that placing *Deronda* (1876) more precisely in the decade of its publication reveals its similarities to a contemporary form of romantic literature, a sub-genre that gained popularity during the late Victorian period, the science fiction sub-genre of the alternate history.

Darko Suvin has pointed out that the "political regroupings in the UK attendant upon the 1867 suffrage reform" helped generate in the 1870s and 1880s a good deal of a kind of science fiction that Suvin describes as alternate history and defines as "that form of science fiction in which an alternate locus (in space, time, etc.) that shares the material and causal verisimilitude of the writer's world is used to articulate different possible solutions of societal problems,

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these problems being of sufficient importance to require an alteration in the overall history of the narrated world" (149).[1] The alternate-history label suggests this sub-genre's preoccupation with the same kinds of public themes that Eliot takes up in *Deronda*. The novels Suvin classifies as alternate histories typically present extreme alternatives to the same late Victorian social institutions that Eliot attacks: the universities, the Church of England, and the traditions of Victorian marriage.

In 1963, speaking at the year's Conference on Science Fiction, Bernard Paris compared Eliot's novels with both science fiction and fantasy to create a hierarchy topped by Eliot's realistic fiction, with science fiction in second place, and escapism and improbability making fantasy a distant third (27). Because Paris bases his hierarchy on the relative effectiveness of the realism of the genres, and because literary theory has since come to acknowledge the difficulty—indeed the futility—of any effort to represent life through the traditional novel form, the realistic basis of Paris's hierarchy has crumbled; the traditional novel can no longer outrank science fiction in a hierarchy of forms because of its superior realism. This dissolution of hierarchy focuses attention, not on the differences between Eliot's fiction and contemporary-but-"minor" genres, but on the similarities. In this spirit Robert Colby argues in *Fiction with a Purpose: Major and Minor Nineteenth-Century Novels* that "Close study of major novelists in relation to minor ones reveals affinities at least as important as divergences" (9). Among the similarities Paris finds between Eliot's fiction and science fiction are two that are particularly prominent in *Deronda* and in alternate-history science fiction: criticism of Victorian social institutions and the use of themes and narrative techniques that emphasize the epistemological role of imaginative hypothesis.

Many scholars—among them Thomas Pinney, Nina Auerbach, John McGowan, and George Levine—have argued that Eliot's theory of artistic realism (manifested in such early works as the 1856 *Westminster Review* essay "The Natural History of German Life" and the famous chapter 17 of "Adam Bede") changes as the novelist's career advances. Both the romanticism and the attitude toward science embodied in *Deronda* indicate this shift in emphasis from a realism which depends on exact observation of the physical and social world to a realism that also accommodates the role of imaginative hypothesis basic to the scientific method (Levine 27). The extrapolations of alternate-history science fiction, therefore, are not so different from the visionary aspects of *Deronda*, specifically the novel's utopian speculations on possibilities for an alternate society dominated by a spirit of nationalism and led by a national hero. At the same time, the social criticism that also links Eliot's novel to the alternate history dominates the English part of the novel and focuses on marriage, religion, and education.

In *Deronda* Eliot embodies her attack on the effectiveness of an Oxbridge education in characters like Hans Meyrick and Sir Hugo Mallinger, who

succeed at university but are not what the narrator regards as moral successes. Meyrick relinquishes his ambition to become a great artist and ends up doing society portraits; Sir Hugo does not retain the respect even of Daniel himself who nevertheless never fails in gratitude to his guardian. Daniel, on the other hand, is not a success at Cambridge; even so, he is the most heroic of Eliot's characters, ultimately achieving the status of national hero. The established Church also comes in for criticism in *Deronda* as Eliot continues to create clerical characters who are inadequate; only Mr. Tryan of "Janet's Repentance" and Dr. Kenn of *The Mill on the Floss* are good and at least partially effective clergymen. Gwendolen Harleth's Uncle Gascoigen is the most worldly of all Eliot's clerical failures. He advises his own niece to marry Mr. Grandcourt, Eliot's most thoroughly evil character, out of materialistic, snobbish, and selfish motives. The Gwendolen—Grandcourt marriage also illustrates the twisted values of Victorian marriage, for the society in which Gwendolen and Grandcourt move thoroughly approves of the loveless power struggle that is their union.

Many of the novels on Suvin's list of alternate histories respond to these institutions as critically as Eliot does. Edward Bulwer-Lytton's *The Coming Race* (1871), Samuel Butler's *Erewhon* (1872), Edward Maitland's *By and By* (1873), Percy Greg's *Across the Zodiac* (1880), Walter Besant's *The Revolt of Man* (1882), and Edwin Abbott Abbott's *Flatland* (1884) all share *Deronda*'s disapproval of the institutions of Victorian England. Just as these alternate histories measure Victorian England against other worlds, *Deronda* measures the worn-out institutions of Gwendolen's world against the ideal climate of Mordecai's.

Despite her own critical comments on literary utopianism, Eliot adopts utopian themes in her last novel.[4] *Deronda*'s Jewish plot, Herbert Levine points out, is "presented as an alternative cultural ideal to its desiccated English counterpart" (421), and Lyn Pykett suggests that its Zionism carries *Deronda* beyond the usual Victorian novel's self-historicization as its plot becomes a "vindication of the visionary" (71). Colby himself observes, "With *Daniel Deronda*, her last and most cosmopolitan novel, George Eliot advances mankind into a further stage—hypothetical future of supranationalism and universal brotherhood" (300).

The geographical scope of *Deronda*, unique in Eliot's fiction, forms another link between Eliot's novel and the alternate histories of its decade. Like the questing heroes of alternate history, Daniel moves around quite a bit: from England, to Germany, to Italy, and finally to Palestine. The other worlds of Victorian alternate history also share the quasi-Orientalism of Eliot's other world, the New Jerusalem. In *The Coming Race*, the center of the earth resembles Babylonian hanging gardens. In *Across the Zodiac*, Percy Greg's Mars also has the Lord Byron/Rudolph Valentino atmosphere beyond which Victorian notions of otherworldliness seem unable to move. When Daniel leaves for

Jerusalem at the end of *Deronda* he joins a procession of questing heroes who are commonplace in the alternate history. Like Daniel on his way to Jerusalem, they travel on voyages of discovery and/or colonization to the center of the earth, to other planets, or to other semi-Oriental exotic worlds that provide contrast with and comment on Victorian England.

Of course a major difference between *Deronda* and the alternate histories is that Eliot's novel lacks futuristic technology. In Edward Maitland's *By and By*, the protagonist operates a flying machine more maneuverable than an F-4. In *Across the Zodiac*, the protagonist reaches Mars in a rocket powered by a new form of energy called apergy. Nevertheless, when Eliot advances her temporal setting in *Deronda* thirty-five years beyond her favorite era (the years surrounding 1832), the mere presence of locomotives and telegraphs creates severe enough shock for the Eliot reader who is used to the daisied fields of *Middlemarch* and *The Mill*.

Moreover, Eliot's thoughtful speculations about science in the other novels and in her essays sometimes resemble those of the alternate-history authors who also ponder—sometimes with positive conclusions, sometimes negative—the implications of advancing technology. From the days when she used to accompany George Henry Lewes on his geological outings at Scilly and Ilfracome, Eliot participated in the lives of her scientific friends, and her realistic artistic credo mainfests her confidence in empiricism. In a late essay on "Story-Telling" (as in the opening to *Middlemarch*), she relates scientific experiment to narrative theory: "These indirect ways of arriving at knowledge are always the most stirring even in relation to impersonal subjects. To see a chemical experiment gives an attractiveness to a definition of chemistry" (Pinney 444).[5] But Lydgate, Eliot's medical researcher, is not in the end an admirable human being, at least by the narrator's standards, and Eliot often demonstrates similar doubts about technological advances. In the opening to *Felix Holt*, her narrator questions the advantages of the tube travel and concludes that the speed might not be worth the sterility. In "Shadows of the Coming Race," she expresses strong reservations about the potential of machines: "Am I already in the shadow of the Coming Race? and will the creatures who are to transcend and finally supersede us be steely organisms growing out of the effluvia of the laboratory, and performing with infallible exactness more than everything that we have performed with a slovenly approximateness and self-defeating inaccuracy?" (140). In "Felix Qui Non Potuit," she is again doubtful: "Of scientific truth, is it not conceivable that some facts as to the tendency of things affecting the final destination of the race might be more hurtful when they had entered into the human consciousness than they would have been if they had remained purely external in their activity?" (449–50). Unlike Dickens and Hardy, she rarely locates the dehumanizing monster in the machine in her novels (one thinks of the elephant metaphor in *Hard Times* or the diabolical threshing machine in *Tess of the d'Urbervilles*); rather, her speculations link her with alter-

nate-history writers who also test the implications of advancing technology. Like theirs, her projections on the consequences of science-run-amok seem especially shrewd from the point of view of the nuclear/computer age.

Such speculations were commonplace in Eliot's milieu, which included some of the alternate-history writers themselves. As Colby points out, "During these times when writers were in close touch not only with their public, but with each other, it was impossible for them to work in isolation" (7). Although Samuel Butler, for example, never met Eliot, they wrote at the same time in the same place for about the same audience. Indeed, there are suggestions that their work is similar to the point of plagiarism. In their edition of *Erewhon*, Hans-Peter Breuer and Daniel F. Howard footnote chapter 22, "The Machine—Continued," with the statement that Eliot's "Shadows of the Coming Race" from *Impressions of Theophrastus Such* "bears some relationship to this portion of the Book of the Machines" (194). Gordon Sherman Haight is more direct about the situation: "Samuel Butler was sure that George Eliot cribbed that chapter from his *Erewhon*" (552).

In *Religious Humanism and the Victorian Novel*, U. C. Knoepflmacher links Eliot and Butler as authors of a kind of novel "advocating a religious humanism based on the fusion of science, morality, and historicism, but essentially one prompted by religious yearning without a religious object" (15). Concentrating on *Middlemarch*, Knoepflmacher finds thematic similarities between the work of the two Victorians: "Like *Middlemarch* itself (the first part of which was published only four months before *Erewhon*), Butler's satire relies primarily on a negative criticism of Church and society" (230). Knoepflmacher goes on to compare *Middlemarch*'s Mr. Casaubon to the professors of *Erewhon*'s Colleges of Unreason through which Butler attacks the Oxbridge universities. And in stating that *Deronda* "examines the present but ardently longs for the future; it is prophetic, quasi-political, exhortatory, and rigidly moralistic . . . the ideal acts as both guide and utopia" (116), Knoepflmacher implicitly links *Erewhon* with Eliot's last novel as well as with *Middlemarch*.

Of course the title to Eliot's speculative essay on computers directly evokes not *Erewhon* but Bulwer-Lytton's 1871 *The Coming Race*, the only alternate history we can be fairly certain Eliot read. In an 1871 letter to John Blackwood (5:205), she compliments him on the fourth printing of the book. Not only did she and Bulwer-Lytton use the same publisher (Walter Besant also published with Blackwood), but they belonged to the same social set for most of their lives. They first met in 1860 (*Letters* 3:264) after Bulwer-Lytton asked Blackwood to bring them together. They were mutual critics, Bulwer-Lytton in general speaking of her novels more favorably than she did of his. He wrote long analyses of such perennial trouble spots as the fight in the woods in *Adam Bede* and the ending of *The Mill*. Although as authors they were themselves occasionally compared, Eliot was less impressed with his novels.[4] In December 1861 she wrote to Cara Bray, "I don't know whether you are reading 'The

Strange Story,' which from its air of lofty science along with representations of preternatural power, is, in our opinion, a rather unwholesome tendency for popular reading—and indeed would be wicked if it were not done by Bulwer in perfect good faith, as it is" (5:468). She respected Bulwer-Lytton for his industry, his variety, and his improvement over the years, rather than for any traces of genius in his work.

Nor was Bulwer-Lytton the only writer of alternate history who socialized with the Leweses. Anthony Trollope, whose 1882 *The Fixed Period* Suvin counts among the Victorian alternate histories, was a frequent guest at the Priory and a longtime friend of Lewes. His novels are among the few contemporary novels that Eliot read, and their mutual literary admiration was more balanced than hers and Bulwer-Lytton's. In the *Letters* she compliments him on *Orley Farm* (4:8–9), and he admires *Romola* (4:45).

Another alternate-history author whom Eliot knew socially was Edwin Abbott Abbott. Suvin distinguishes Abbott's *Flatland* from the run of alternate histories; it achieves, he suggests, "the coup of most adroitly fusing lucid geometrical didactics and a satirical parable" (163). Abbott's relationship with Eliot, like the "headmasterly humor" and "geometrical didactics" (163) of his alternate history, depended partly on his job as headmaster of the City of London School. Although Eliot generally shied away from allowing publication of extracts from her novels, she did permit Abbott to assemble some into a classroom text, and two copies of Abbott's books appear in the surviving collections of Eliot and Lewes's libraries: *Bible Lessons* in the Ouvry Collection and *A Shakespearian Grammer* at Dr. Williams's Library. On 26 April 1871, Abbott and Trollope joined a group of some of the Lewes's most literary friends and acquaintances at an afternoon party at the Priory, and in 1876 Abbott wrote Eliot a letter of praise for her new novel, *Deronda*.[7]

There is no evidence that Eliot ever met Edward Maitland or read *By and By*, yet the similarities between it and *Deronda* are striking. Aside from their alliterative names, Daniel and Christmas Carol, the hero of *By and By*, share their messianic roles, their Jewishness, their connections with angels, and their childlike wives. Both are Carlylean figures who attempt projects of epic scope significance.[8] Carol moves the Mediterranean Sea into the Sahara Desert and creates a new society in Sudan at the same time; Daniel spearheads the move for Jewish nationalism in Palestine. The novels pick up both heroes just as they are coming of age—dreamy young idealists whose futures are the focus of attention for their mother-hen friends as they look about for a project suitable to their talents and ambitions.

Both *Deronda* and *By and By*, moreover, embody stereotypical nineteenth-century perceptions of Jews. Both novels depict Jews as talented merchants. In *Deronda*, Ezra Cohen cultivates the mercantile spirit in his son; in *By and By*, Maitland puts Jews in charge of world finances when, in the wake of a revolution called the Emancipation, the one-world bureaucracy passes out social roles

according to the talents of individual nations. Both novels explore the possibilities of the idea of a Jewish homeland. Whereas *Deronda* concludes with the hero's setting out for Jerusalem, in *By and By* Carol rejects the possibility of ruling Jerusalem with some fear. When the crown is offered him he refuses, and refuses furthermore to return to Jerusalem for fear that the "enthusiasm of the crowd" (267) might force him to accept.

The marriages of Carol and Deronda also share similarities, for, as in most alternate histories, the role of women is pivotal in the politics of the alternate society. The strengthening of the feminist movement that occurred during the two decades that form the alternate-history heyday (Elaine Showalter describes the period beginning in 1880 as "intensely feminist" [2]) made women's rights a ripe issue for utopic/dystopic speculation. Indeed, Suvin asserts that Walter Besant wrote *The Revolt of Man* in "direct response" to the growing power of the movement (159). In her analysis of Rider Haggard's *She* (1887), Sandra Gilbert refers to Mario Praz's evidence in *The Romantic Agony* to support her conclusion that "as the [nineteenth] century wore on it was not just 'sex' but specifically the female sex, that increasingly obsessed male writers in France and England" (124).

Nearly all the alternate histories embody this obsessive wish that women might solve the problem for everybody by simply accepting their own inferiority and staying quiet—a wish usually accompanied by a high degree of sexual anxiety. In *Across the Zodiac* gender equality has been tested and discarded on Mars before the action of the novel begins because no one has found the liberated woman attractive enough to marry. Equality has jeopardized the entire future of the race. In Besant's novel of sex-role reversal, the women in power have thoroughly botched their job: the House of Peeresses argues ever on in fruitless cacaphony; the universities teach nothing but the social sciences and art; and technological progress has entirely ceased. When the army of men in rebellion against women's rule is joined by a supporting, nurturing group of women who long to be relieved of the responsibilities of power, Besant's wishful thinking is complete.

Another manifestation of the anxiety and wishful thinking of these late Victorians is their dichotomizing characterizations of women. The weaker, and especially the quieter, woman is the one who wins a loving husband. Similarly, in the other worlds of the alternate history women are frequently either tiny and submissive like Mirah, or dynamic and self-seeking like Gwendolen. In *By and By*, Carol marries a child-woman whose dying words reproach her husband for never beating her. His paternalistic authority is quite self-conscious: when he goes to Africa to educate the natives, "he undertook to make them comprehend that natural law which seems to assign to men a monopoly of the sphere of politics and religion, and to restrict women to the social and industrial sphere" (336). Both Deronda and Carol have their first encounters with their future wives in rescue situations: Deronda saves Mirah from suicide, and Carol saves

Nannie from an attack by black Africans. Greg's Eveena, too, is "tiny rather than small: so light, so perfect in proportion, form and features, so absolutely beautiful, so exquisitely delicate as to suggest the perfect Fairy Woman" (168). In addition, the harem in *Zodiac*, which, according to Suvin, suggests the "pornographic, indeed paedophiliac wishdreams of the Victorian bourgeois" (158), parallels Mirah's home with the miniature Meyrick women in *Deronda* who also live exclusively in the service of one man, in their case their brother Hans. Indeed *Deronda* is full of sets of sisters that seem to proliferate in harem-like plenitude. In addition to the Meyricks, there are the four young Davilows, the three Mallinger daughters, the two Gascoigne girls, and the three of Grandcourt's illegitimate progeny left portionless when their brother inherits.

A common complaint of *Deronda*'s readers is that Daniel chooses the wrong woman. Mirah's self-sacrificial mildness often disappoints hopes that Eliot might be decisively part of the feminist explosion of the decade. Although Jean Kennard, for one, finds Gwendolen's avoidance of the traditional marriage-plot ending a postive step (200), Eliot, like the writers of alternate history, pairs her hero with a woman whose qualities suggest that she will be, above all, manageable, and consequently manifests a similar conservatism.

Female landscapes in alternate history often contrast with the spaces allotted to the male characters who must fly or sail enormous distances to get to their other worlds. Although *She* is not one of the alternate histories, Gilbert's comments on how penetration of female spaces of cave and labyrinth threaten the male characters in Haggard's novel (125) is appropriate to the earlier Victorian science fiction as well. In *Erewhon* there are sexual overtones in the landscapes of mountains and valleys through which the protagonist must pass to the other world. When the traveller in *The Coming Race* gets to the center of the earth, he finds a group whose women are powerful and dangerous. But *The Coming Race* is also a bit of an exception in that Zee, his tutor and would-be lover can fly: she rescues the earthling in a sort of assumption scene at the end of the novel. More typically the travelling male, like Gabriel or Rafael, is often in flight and hence angelic. Maitland connects Christmas Carol with angels most directly: Carol occasionaly takes his flying machine up to the stratosphere and talks to angels face to face. Eliot, too, contrasts the contained world of women, the Meyrick parlor, for example, with Daniel's almost cosmic sphere. Herbert Levine points out that Eliot applies angel metaphors to Daniel in direct contrast with the demonic reptilian imagery associated with Gwendolen (441).

Whether Brobdingnagian or Lilliputian, the female characters of both alternate history and *Deronda* are dangerous. Liaison with Arowhena in *Erewhon* will violate the primogeniture rules of the society, and if the earthling in *The Coming Race* accepts Zee's love he will suffer nothing less than dissection, a sort of extended castration. The harem in *Across the Zodiac* conceals menacing spies, and even in Abbott's *Flatland* (which focuses its criticism more on the sexism and misogyny of Victorian Britain than on pushy women who want to

extend their rights) the women are dangerous. In Abbott's geometrical world all men are at least triangular in shape, while women are not shapes at all, but only lines. Nevertheless, by facing the world head-on, the women in Abbott's novel can reduce themselves to points and hence become invisible. At any time the impact of their pointed ends is lethal, and when they become agitated, women must be confined in boxes to prevent their thrashing about.

Often the alternate histories associate the dangerous power of women with a mysterious source of energy, a demonic fluid, or a poison. The bigger, stronger women of the subterranean world in *The Coming Race* have more control than do the men over the vril, a sort of electric power source that includes intuition, traditionally a female characteristic. As in Victorian England, the narrator of *Across the Zodiac* points out, the women of Mars are socially prohibited from drinking the local intoxicant. Indulging in charny puts one beyond the limits of the feminine into the anti-feminine. Because attempting to communicate with her husband requires desperate efforts, so unreachable is he in his authority over her, the obedient Eveena tries to anger him by drinking charny. The charny conveys the message that her submissiveness forbids her to speak in words. Even the women of *Flatland* talk too much:

> Light itself is not more persistent than the *stream* (my ital.) of feminine discourse. The tact and skill which suffice to avert a woman's sting are unequal to the task of stopping a woman's mouth; and as the wife has absolutely nothing to say, and absolutely no constraint of wit, sense or conscience to prevent her from saying it not a few cynics have been found to aver than they prefer the danger of the death-dealing but inaudible sting to the safe sonorousness of a woman's other end. (16)

The stronger women of *Deronda*—Gwendolen, Lydia, and the Princess—all have a power that fails to get them what they want, but does carry a potency often associated with the power of words. In her notebooks Eliot noted that gems have been used by certain cultures as curatives (which are, of course, under the wrong circumstances, poisons); she includes this bit of research in describing Tito's ring in *Romola* (Wiesenfarth 194). The gems in *Deronda* are a solidified poison that link Gwendolen's and Lydia's evil when Lydia poisons Gwendolen's wedding night by sending the diamonds that symbolize power over Grandcourt. The words of Lydia's letter combine with the implications represented by the diamonds to intensify Gwendolen's hate until she becomes dangerous enough to murder her husband.

Even when the women of alternate history are trivialized by diminutiveness, language sometimes guarantees their power, for the ruler of the other world often has a female relative, usually a daughter, who not only teaches the traveller the local tongue but instructs him on the institutions of the country as well. Indeed, the narrative importance of the female character far exceeds her political importance in the other-world societies, since without the romantic plot in which the ruler's relative and the earthling fall in love, the novels would

generally remain static utopias or dystopias in which the traveller has one institutional model after another minutely (and often tediously) explained to him.[9] Typically, the only plot dynamism arises from the love story. And ever since F. R. Leavis planned to take his scissors to *Deronda* and extract a novel called *Gwendolen Harleth*, critics have conceded that the lively English part of *Deronda*, Gwendolen's province, contains the interesting action lacking in the static Jewish part of the novel. The tedious discussions of Mordecai's friends at the Hand and Banner partake of the dullness of some of the extended descriptions of institutions common in the alternate histories.

The only science fiction reader among Eliot's characters is Dr. Lydgate who, as a child, enjoys books sometimes considered prototypical science fiction: Samuel Johnson's *Rasselas*, Jonathan Swift's *Gulliver's Travels*, and Charles Johnstone's *Chrysal; or, The Adventures of a Guinea*. As he grows up, Lydgate comes to represent his research mission to himself through the metaphor of the explorer common in his childhood reading; the narrator of *Middlemarch* comments, "About 1829 the dark territories of Pathology were a fine America for a spirited young adventurer" (109). In *Deronda*, Daniel's journey is not metaphorical. Daniel reads history and epic as a child, and his project of exploration and colonization is not a representation of a more conventional career as it is for Lydgate. By dropping the metaphor in *Deronda*, Eliot makes the journey an element of plot rather than of imagery and consequently more like the alternate histories that became popular so rapidly as a sub-genre in late Victorian England. If, as Colby argues, *The Mill on The Floss* fits in with the education novels of the forties and fifties, and *Middlemarch* with the domestic novels of the sixties, the alternate histories of the seventies and eighties provide a context of "minor" works in which to place the "major" work, *Daniel Deronda*, and prove that Eliot is not only a transcendently great novelist, but also a member of a definable late Victorian trend as well.

Notes

1. Among some of the noteworthy attempts: U. C. Knoepflmacher's *"Daniel Deronda* and William Shakespeare," George Levine's "George Eliot's Hypothesis of Reality," Herbert Levine's "The Marriage of Allegory and Realism in *Daniel Deronda*," Elinor Shaffer's *"Kubla Khan" and* The Fall of Jerusalem: *The Mythological School in Biblical Criticism and Secular Literature, 1770–1889*, and Joseph Wisenfarth's *George Eliot's Mythmaking*.
2. The 1982 George Eliot issue of *Genre*, for example, is dominated by discussion of *Deronda*.
3. Suvin adds that the alternate history "is not a full-fledged literary genre, but a literary form or convention in the process of aspiring to the status of, or hesitating on the verge of becoming, a sub-genre" (150): a near sub-genre.
4. In "Leaves from a Note-Book," for example, Eliot writes, "Utopian pictures help the reception of ideas as to constructive results, but hardly so much as a vivid presentation of how results have been actually brought about, especially in religious and social change" (Pinney 447).
5. *Middlemarch* opens mixing science and St. Theresa: "Who that cares much to know the history of man, and how the mysterious mixture behaves under the varying experiments of Time, has not dwelt, at least briefly, on the life of St. Theresa" (3).

6. Eliot and Bulwer-Lytton are still compared. Hugh Witemeyer comments that in "George Eliot's *Romola* and Bulwer-Lytton's *Rienzi*, Butler's theory and practice of the historical romance helped George Eliot to define the aims and to organize the narrative of her first extended effort in that genre" (162).
7. Rosemary Jann describes Abbott's *Flatland* as a parable on the need for imaginative hypothesis, need to which George Eliot's later realism (according to George Levine) is sensitive..
8. This heroism, as well as other details of plot and characterization, also links them with Benjamin Disraeli's *Tancred*, another Victorian Jewish savior.
9. Suvin concedes that plot dynamism can pose a problem for both serious and satirical alternate history, the one liable to diminish into pure diagram, and the other lingering "on the verge of outright allegory" (150). Without suggesting that *Deronda* is a satire, I might point out that Herbert Levine argues that the novel divides, not into the traditionally perceived Jewish and English parts, but into two narrative structures, one realistic, one allegorical (421).

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The Ambiguity of Innocence: *The Turn of the Screw*

DENNIS CHASE

■ Few critical theories about literary works have engendered as much controversy as Edmund Wilson's thesis in "The Ambiguity of Henry James" (1934) that in *The Turn of the Screw* "the ghosts are not real ghosts but hallucinations of the governess," who "is a neurotic case of sex repression" (*Homage* 29). Wilson never abandoned his Freudian hypothesis,[1] in spite of sharp rebuke from many Jamesian scholars. Dorothea Krook, for example, speaks of "his misguided Freudianism" and accuses him of "arriving at conclusions which are no longer even perverse but merely fatuous" (373 n. 2). And Krishna Vaid contends that he "makes a travesty of the text" (115) and has even "violated . . . the larger context more flagrantly and more persistently than any adherent of his theory" (122). Wilson's interpretation is like the proverbial horse that has "been much beaten but never yet . . . to death," and more than one critic would like to see it given a "decent burial" (Krook 370 n. 2). But the Freudians are still active. A Freudian reading alone, however, which shows that Miles is as much a sexually precocious young man as he is a ten-year-old boy, results in ambiguity. This ambiguity can be resolved only if the innocence of the two innocents, Miles and the governess, is recognized. Both are inexperienced characters who blunder at one another throughout the novel, especially in chapter 17.

The theory that the governess is sexually repressed is well founded: she is the daughter of a country clergyman, suggesting limited informal contact with the opposite sex; she is infatuated with her handsome employer, whom she never sees after their single interview; and she states, immediately before her first sighting of Peter Quint, that "it would be as charming as a charming story suddenly to meet some one" (19)—a man, presumably. The Freudian innuendoes, whether intentionally or subliminally inserted, are evident: the figure of Peter Quint on the tower (a phallic symbol), the lake (the female sex organ) in front of Miss Jessel, and the piece of wood that Flora intently maneuvers into

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the hole of another piece of wood (*Homage* 29–31). And as Robert Liddell observes, even the words *turn* and *screw* in the title of the work are suggestive (134).

Many factors contribute to the governess's anxious state of mind, especially the letter dismissing Miles, the presence of Miss Jessel and the children, and the governess's mixed feelings toward the handsome man who employed her and thus gave her the responsibilities of Bly. After a conversation with Miles (chapter 14), during which he insists that "a fellow . . . [cannot] be with a lady *always*" (65), the governess feels that she must learn why the boy has been dismissed from school and, furthermore, must inform his uncle, even if that means her employer must come to Bly. As she collapses on the staircase (chapter 15), the governess becomes aware of the presence of Miss Jessel and calls her predecessor a "terrible miserable woman" (69); but when she talks with Mrs. Grose afterward (chapter 16), she asserts that Miss Jessel told her that "she suffers the torments . . . of the lost. Of the damned" and therefore has come to take Flora "to share them" (71). When the governess and Mrs. Grose speak of the letter from school, the governess blames the children's uncle for all that has happened because he left the two in the care of Miss Jessel and Peter Quint. Because Miles is "so clever and beautiful and perfect" (72), the governess believes that he must have been dismissed "for wickedness." Resolving to write to her employer that night but unable to start the letter, she goes to Miles's doorway. She explains that "under [her] endless obsession," she listened "a minute" at Miles's door for "some betrayal of his not being at rest" (73). He, too, has been listening for and hoping to see someone—specifically, the governess—as is suggested by his cordial and seemingly prepared invitation for her to enter, in a voice that conjures up images of "gaiety in the gloom" (73), "gaiety" because of his happiness at hearing just whom he wanted to hear—and see. When she asks him what he was thinking of as he lay awake, Miles says, "What in the world, my dear, but *you?*" He adds, "Well, I think also, you know, of this queer business of ours" (73). As she "mark[s] the coolness of his firm little hand," she asks what he means. Miles replies, "Why the way you bring me up. And all the rest!" The governess has to hold her breath "fairly . . . a minute" as she continues her questioning: "What do you mean by all the rest?" He smiles "up at [her] from his pillow": "Oh you know, you know!" She can "say nothing for a minute . . ." (73).

The governess's youthfulness and inexperience are important to note, and the suggestion is that the age difference between her and Miles is no greater than that between her and Douglas. The governess may well be one of James's "thwarted Anglo-Saxon spinster[s]" (*Homage* 35), but she is also sexually excited by the innuendoes of this exchange, as is Miles. The young boy whose hand she holds is sexually aroused by this attractive young woman. Undoubtedly influenced by Peter Quint and by his uncle, Miles is part boy, part man. He has the sexual urge, but not the confidence which comes with maturity. He can

only try to express himself through his enigmatic responses. Despite the governess's momentary inability to answer Miles, she does reveal her thoughts: "I felt as I held his hand and our eyes continued to meet that my silence had all the air of admitting his charge and that nothing in the whole world of reality was perhaps at that moment so fabulous as our actual relation" (73).

At once—compulsively or inadvertently—she returns to a topic that can only add to the excitement of each. She tells Miles that he can return to school, although it must be "another, a better" school. As she reminds him that he has never told her anything about the school or his companions there, her imagination creates an image that is, at least temporarily, emotionally acceptable to her: "His clear listening face, framed in its smooth whiteness, made him for the minute as appealing as some wistful patient in a children's hospital; and I would have given, as the resemblance came to me, all I possessed on earth really to be the nurse or the sister of charity who might have helped to cure him" (73–74). As he smiles and calls "for guidance," something about him "set . . . [her] heart aching with such a pang as it had never yet known" (74). As she prattles on about his not telling her about the school, her "absolute conviction of his secret precocity [or his sexual precocity?] . . . made him . . . appear as accessible as an older person." Her confusion in the situation reveals itself as she speaks of that precocity as "whatever I might call the poison of an influence that I dared but halfphrase" (74). The entire exchange must be read as the ambiguity of innocence and innocents. How, for example, can her next remark, "I thought you wanted to go on as you are," be interpreted? At one level it can refer to his remaining in the country (she responds to his desire to "get away" by asking if he is "tired of Bly"), where he is constantly her close companion. Or this can be seen as a reference to his virginity.

The basic problem of *The Turn of the Screw* is the narrative point of view. To distance the story, James employed the time-worn device of the old manuscript to authenticate the events at Bly. But the mind of the governess is the filter through which those events must come. The memories are hers, but does she record what actually happened at Bly or what she imagined, what she unconsciously wished for? Therein, of course, lies the crux of the debate between the Freudian and non-Freudian readings of *The Turn of the Screw*.

The memory of the governess suggests that in this sequence Miles is as excited—or as confused?—as she. In response to her question about going on as he is, "he just faintly coloured" (74). Admitting that he "likes Bly," he insists, "Oh *you* know what a boy wants!" To her immediate inquiry as to whether or not he would like to return to his uncle, Miles blurts out the sexually explosive line, "Ah you can't get off with that" (74). She unhesitatingly replies, "My dear, I don't want to get off!" But she then is the one "who changed colour" (75).

The emphasis on the word *you* and the exclamations "Oh" and "Ah" suggest that she remembers the incident as emotional and containing an urgent, if

oblique, attempt at communication with the precocious boy. The expression "get off" illustrates the sexual quality of the governess's memories. Today that phrase can mean "to have an orgasm," as in the line from a contemporary novel: "All he wants to do is get in, get off and get out as fast as possible" (King 106–07). It can also mean to "become . . . intimate with" (Freeman 77), "to become friendly with, or deliberately attract, a member of the opposite sex" (Cowie and Mackin 119), and "to have sexual intercourse with" (Delbridge 749). Although the last usage occurs more frequently in modern Australian English, it is also found in English Renaissance Literature. In John Fletcher's *The Wild-Goose Chase*, produced in 1621, Belleur, thinking about his planned seduction of Rosalura, says, "I am resolved to go on; / But how I shall get off again . . ." (II.i.51–52). Once "on," that is, he will not want to "get off" anymore than the governess in her sexual fantasy wants to "get off" Miles. In this reading of the term, the only difference between Belleur's and the governess's fantasies is one of position. Belleur's words carry the "innuendo of sexually dismounting from the woman after copulation" (Henke 110); the governess's observation ("I don't want to get off!") would indicate that she imagines herself in the superincumbent position. It is important to note that James was quite familiar with Fletcher. Some time after James's admission to London's select Reform Club in 1878, he observed, "Since my election, I have done nothing but sit there and read Jowett's Plato and Beaumont and Fletcher" (Edel 285). This evidence, along with the fact that "get in" implies sexual intercourse in Thomas Dekker's 1630 play *The Honest Whore, Part II* (I.i.177–78), that "go" and "off" are used separately to suggest various aspects of intercourse elsewhere in Renaissance drama (Henke 110, 112, 180), and that "to get with" has meant "to beget," or "to impregnate," at least since the time of Christ, gives credence to a sexual reading of this interchange between Miles and the governess—and others as well, most notably that in which Miles comments on her ability to "bring . . . [him] up." James is clearly a master of sexual innuendo.

The governess's mention that Miles "lay beautifully staring" at her (75) during the conversation adds to the suggestiveness of the scene, as does his further remark that "I don't want to go back. . . . I want a new field" (75). That remark moves the governess to action. Speaking again of his "unimpeachable gaiety" and troubled by the idea that if he left, he would probably reappear "at the end of three months with all this bravado and still more dishonour," the governess asserts that she could not stand such an event:

> . . . and it made me let myself go. I threw myself upon him and in the tenderness of my pity I embraced him. "Dear little Miles, dear little Miles—!"
>
> My face was close to his, and he let me kiss him.(75)

But here occurs another twist of the ambiguity, for Miles accepts the kiss, "simply taking it with indulgent good humour," saying "Well, old lady?" That

remark might well have encouraged her to make the next move; it is adult, something Quint or his uncle might say. But Miles cannot maintain an adult pose, especially when the governess asks, "Is there nothing—nothing at all that you want to tell me?" He turns from her, looking round only to remind her that he had earlier told her "to let me alone" (75).

The woman in the governess is persistent; she does not want to "lose" (76) her "man." Urged on by his "faint quaver of consenting consciousness," she drops to her knees at his bedside to "seize once more the chance of possessing him" (76)—his soul possibly, his body certainly. When she says to him, "if you *knew* how I want to help you" (76), she is subtly offering herself to him; she even acknowledges to herself that she has "gone too far" (76) to retreat. At this moment an inexplicable, "extraordinary blast" of air shakes the room "as if . . . the casement had crashed in," causing the boy, in an orgasmic frenzy, to utter "a loud high shriek which . . . might have seemed . . . a note either of jubilation or of terror" (76). Though Miles is not physically capable of an orgasm, the adult in him experiences it symbolically, and because of the nature and novelty of the experience, he is elated and terrified. Appropriately, the candle (a phallic symbol) that the governess takes with her to Miles's room is extinguished. The boy-man's sexual desire has been symbolically satisfied and the heat from the flame of the candle has been dispelled by the "chill" from the "gust of frozen air" (76). Of course, Miles's fire has been extinguished, not by cold air, but by the governess. And Miles, once again more the man than the boy, reveals that he has done his part to facilitate matters; his extinguishing the candle not only darkens the room for the secret tryst but also symbolizes his active role as lover.

James mentions the candle seven times in this short chapter, the repetition reinforcing its symbolic importance. That it generates heat, is phallic-shaped, and is usually found in the governess's hand makes it an ideal symbol for conveying her sexual desires. Early in the chapter when Miles, lying in bed, asks her what she is "up to," the governess is standing over him with candle in hand; she is "up to" a number of things. And when the candle is not in her hand, it is "designedly, a short way off" (73)—always within reach, to be sure.

Whether James intentionally included the Freudian imagery in the novel is a moot point, but recognition of its existence is not tantamount to calling "a great writer 'a repressed governess' " (Liddell 134). Edward Davidson advises not to fall victim to "the obvious human failing to confuse life and literature—to assume, in other words, that what a man wrote he inevitably was in his own person. If a writer dealt with . . . eroticism, he was of necessity . . . erotic" (vii). The sexual innuendoes in no way undercut James, but rather add to the richness of his characterizations. These innuendoes are fully explicable only if they are viewed as the products of the innocence and resulting confusion of two characters—Miles and the governess—whose real complexity has thus far eluded both the Freudians and the non-Freudians.

Notes

1. Over the years Wilson changed his mind on some matters, such as whether or not James intended the governess's story to be ambiguous. He revised his 1934 essay for inclusion in his *Triple Thinkers* (1938) and expanded it for a revised edition of the book (1948). He later appended a brief note, dated 1959, to a reprint of the 1948 version of the essay (*Casebook* 153). Interestingly, Ezra Pound, not Wilson, was the first to suggest the Freudian implications of *The Turn of the Screw* (326).

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"More Demon Than Man": Melville's Ahab as Gothic Villian

TONY MAGISTRALE

■ Herman Melville's fiction reveals his fascination with elements from the eighteenth-century Gothic literary tradition. Merton Sealts says that Melville read Walpole's *Otranto*, Beckford's *Vathek*, and even Mary Shelley's *Frankenstein*, as well as a number of lesser known but related Gothic texts.[1] Gothicism is concerned with fallen man, often embracing and flaunting his sinful state. The genre's characteristic association with evil, the rebellion against God and optimistic virtues, and an emphasis on disorder, chaos, and ambiguity all find a developmental place in Melville's works. The Gothic supplied Melville with a workable tradition: a theater that enabled and encouraged him to give dramatic life to conflicting and often darkly pessimistic philosophical positions. In his hands, the standard, eighteenth-century Gothic apparatus—blood bonds with evil, haunted castles, a reliance on supernatural terror—evolved to tell a more complicated story, focusing on the profoundly tragic imperfections inherent in man and his institutions.

Melville's most ambitious use of standard Gothic elements occurs in his 1851 novel, *Moby-Dick*. The environmental backdrop of the novel itself—life on board the restricted *Pequod*—possesses something of the poetic quality of the haunted house, with Ahab as the one man who is lord over it. Indeed, the ship's bond with the land-locked haunted house may be felt in nearly every description of the *Pequod:* from its weather-stained hull, its venerable bows, its spire-like masts, its worn and ancient decks, to its general atmosphere of grotesqueness and somber picturesqueness.[2] In short, the ship holds much in common with the Houses of Usher, Udolpho, or Otranto. Moreover, the eclectic collection of sailors on board the *Pequod* are as much Ahab's captives as any incarcerated maiden trying to gain exit from the Gothic castle.

It is, however, within the actions and personality of the *Pequod*'s mad captain Ahab that Melville's most significant debt to the Gothic genre becomes apparent. A major theme running through Gothic fiction is an association of the

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male villain with evil forces, most specifically, the Devil. Ahab emerges as an embodiment of the fallen angel demi-god who in the Christian myth was variously named Lucifer, Devil, Adversary, Satan. Ahab is not Satan, but a human creature possessing Satan's evil pride and energy, summing up within himself, as Irenaeus said, "the apostasy of the devil." Melville's intention to beget Ahab in Satan's image can hardly be disputed. Indeed, early in the novel Elijah warns Ishmael and Queequeg to fear for their souls because a voyage with Ahab and his "shadowy figures" is certain to involve evil:

> "Yes," said I [Ishmael], "we have just signed the articles."
> "Anything down there about your souls?"
> "About what?"
> "Oh, perhaps you hav'n't got any," he said quickly.
> "No matter though, I know many chaps that hav'n't got any. . . . He's got enough though, to make up for all the deficiencies of that sort in other chaps," abruptly said the stranger, placing a nervous emphasis on the word he.[1]

Connected to the Gothic fascination with evil is a pervasive element of blasphemy. In Lewis's *The Monk*, Ambrosio is a Catholic monk who violates on top of an altar a woman masquerading as a nun. Vathek in Beckford's novel of the same name, makes a Faustian pact with Satan in order to experience as many depraved sensations as mortal life will afford. Ahab is a continuation of this Gothic tradition in that he is an "ungodly, god-like man" (p. 119) who is spiritually outside Christendom. In Ahab there is a well of blasphemy and defiance, of both rejection and scorn for the gods: " 'Who's over me?' " he asks, taunting whatever inhuman forces may animate the supernatural realm (p. 221). We are also told that Ahab once spat in the holy goblet on the altar of the Catholic church at Santa (p. 134). In the course of the whale voyage—a journey that ironically commences on Christmas Day—Ahab engages in three blasphemous rituals. Each unholy rite incorporates the use of a harpoon (with Ahab serving in the role of high celebrant) clearly to present a blasphemous parody of a religious ritual. In the first of these rituals, "The Quarter-Deck," Ahab pours grog into the inverted ends of hollow harpoon heads and commands the harpooners to drink from the "murderous chalices" with this oath: " 'God hunt us all, if we do not hunt Moby Dick to his death' " (p. 225). And when Starbuck suggests that perhaps Ahab's quest is blasphemous, the captain snarls in a tone reminiscent of Manfred's or Melmoth's enraged pride: " 'Talk not to me of blasphemy, man; I'd strike the sun if it insulted me. For could the sun do that, then could I do the other; since there is ever a sort of fair play herein, jealousy presiding over all creations' " (p. 221).

The demonical nature of Ahab's quest is again suggested in "The Forge," when Ahab baptizes a scorching harpoon in the name of the Devil. And, finally, in "The Candles" Ahab uses his consecrated harpoon to aid him in a speech of defiance, asserting his unconquerable individuality in the face of nature: " 'Oh,

thou clear spirit, of thy fire thou madest me, and like a true child of fire, I breathe it back to thee. . . . Yet blindfold, yet will I talk to thee. Light though thou be, thou leapest out of darkness; but I am darkness leaping out of light, leaping out of thee!' " (p. 642). Like Manfred on his mountain, lightning flashes and Ahab speaks directly to it, calling it his ancestor: " 'There burn the flames! Oh, thou magnanimous! now I do glory in my genealogy. But thou art but my fiery father; my sweet mother, I know not' " (pp. 642–43). In these scenes Melville relies on standard Gothic visual effects and soundtrack: tremendous fire, blackness, storm, and battering seas; all are present, as are high emotion, conflicting beliefs, and a clash of personalites. Ahab once more establishes his link to the male-dominated world of the Gothic genre by calling the flames his father, while denying even a knowledge of a mother's milder milk.

His nexus to evil notwithstanding, there exists another side of Melville's captain that is not entirely wicked. Like Walpole's Manfred or Lewis's Ambrosio, "Ahab has his humanities" (p. 120). We are told that he thinks often of his bride and daughter, and his care of the pathetic Pip reveals his compassion. These instances serve to complicate our response to Ahab and further connect him to earlier Gothic prototypes. Despite his imperious manner and narrowed perception of reality, Ahab possesses a streak of sensitivity and melancholia that is found in a number of earlier Gothic villains. Maturin's Melmoth and Lewis's Ambrosio are two illustrations of the morbidly sensitive Gothic hero whose value system is considered warped because he refuses to conform to accepted social mores. The Gothic novel thus prefigures the romantic movement insofar as it delineates the irreconcilable gap between individual psyche and societal constraints. The Gothic hero's alienation is self-imposed and socially ordained; it remains a continual source of paradox, encompassing both a sense of pride in his rising above the moral restraints of common men and a melancholic lamentation born out of prolonged isolation.

Like Manfred's, Ambrosio's, or Melmoth's, Ahab's single name suggests a lonely and sinister independence from social ties. Ahab throws overboard, loses, or smashes several social objects in the course of the voyage. Each one symbolizes the rejection of some aspect of his connection with the rest of humanity. In chapter 30, "The Pipe," Ahab realizes that he no longer can derive any pleasure from so leisurely an activity as smoking and throws his pipe into the sea. In "The Quadrant," Ahab dashes the valuable instrument to the deck and crushes it, shouting, " 'Cursed be all things that cast man's eyes aloft to that heaven, who live vividness but scorches him' " (p. 634). In both scenes Ahab, more and more obsessed with the inhuman whale, is shown displaced from human or geographical positioning in the actual world. The unsocial nature of the *Pequod*'s voyage under Ahab is stressed in the ship's encounters with the other whaling vessels. Because of Ahab's obsession, the *Pequod* is not merely unsociable, but antisocial in the literal sense:

"Come aboard, come aboard!" cried the gay Bachelor's commander, lifting a glass and a bottle in the air.

"Hast seen the White Whale?" gritted Ahab in reply.

"No; only heard of him; but don't believe in him at all," said the other good-humoredly.

"Come aboard!"

"Thou art too damn jolly. Sail on. . . ." (p. 627)

Not simply desirous of avoiding company, but actually of attacking the very foundation and values upon which a society is built, Ahab's quest becomes a fanatical violation of both the purpose of whaling and of respect for other human beings. Ahab's attitude bears much in common with the profoundly antisocial world of the eighteenth-century Gothic novel. A primary reason that the Gothic novel remains significant to literary history is that it initiates the destruction of the social order and stability that was characteristic of the rest of the eighteenth century. The last decade of this century—with its emphasis on the breakdown of social ties, social hierarchy, conventions, and institutions—belongs more to the romantic generation of the century to follow rather than to the enlightened world of reason and societal organization. It is, after all, the decade that followed the dramatic French Revolution of 1789. The *Pequod*, then, is analogous once more to the haunted castle where the Gothic owner spends the majority of his time avoiding social company, and tending to an assortment of perverted personal quests.

If Ahab's bonds with humanity are shown to be slowly disintegrating in the course of the voyage, his links with the satanic grow proportionately stronger. His personal crew, for example—those "shadows" that Ishmael and Queequeg see board the *Pequod*,—resemble mysterious phantoms from an old Gothic romance; indeed, they are refugees taken directly from *Vathek*. The crew has a symbolic significance reflected in Ishmael's speculation: "Such a crew, so officered, seemed especially picked or packed by some infernal fatality to help Ahab to his revenge" (p. 251). Melville's most striking use of the Gothic device is his characterization of the enigmatic Fedallah, the crew's leader: "That hair-turbaned Fedallah remained a muffled mystery to the last. . . . He was such a creature as civilized, domestic people in the temperate zone only see in their dreams" (p. 307). Fedallah seems linked to *Macbeth*'s weird sisters, especially in his talent for surrounding himself in an air of ambiguity and in stating false prophesy. Like the forces of evil in Gothic dramas, he is never clearly defined by the author but is omnipresent, lurking mainly in the background and always weaving an air of intrigue. Also, Fedallah's "presence" on board the ship grows in proportion to Ahab's nearness to the whale. We do not see him at all early in the voyage; he and his infernal crew only emerge from the *Pequod*'s shadows when it is time to go into battle against Moby Dick. Fedallah seems to represent the darkest recesses of Ahab's own psyche, emerging more as an extension of the captain's deepening madness than as an independent source of evil.

In depicting the end of Ahab's quest, Melville uses colossal effects similar to those found throughout the Gothic realm. Mrs. Radcliffe's castles inevitably vanish into forests or tarns or the reader's imagination in the conclusions of her novels. The end of *Moby-Dick*, like so many Gothic visual climaxes in Poe's tales or Walpole's *Otranto*, overwhelms the crew of the *Pequod* as well as the reader in a vortex to such intensity that is sucks everything with it, including a "living part of heaven."

> Tashtego kept his hammer frozen there; and so the bird of heaven, with archangelic shrieks, and his imperial beak thrust upwards, and his whole captive form folded in the flag of Ahab, went down with his ship, which, like Satan, would not sink to hell till she had dragged a living part of heaven along with her. (p. 723)

The tale that Ishmael lives to tell, however, ultimately succeeds in transcending the restrictive Gothic world of the late eighteenth century. The genre's scope is enlarged by Melville to include a tragic dimension: Ahab goes out not simply to avenge his accident at the jaws of Moby Dick, but to revenge a world-insult, the world-wound of existence as symbolized in his leg injury: that man is a simple creature fated to dying by his very birth. Melville adds philosophical complexities to *Moby-Dick* that finally lift it out of the Gothic cesspool. But through an adaptation of standard Gothic apparatus *Moby-Dick* attains the power and dimensionality of classical tragedy.

Notes

1. Merton M. Sealts, Jr., *Melville's Reading* (Milwaukee: Univ. of Wisconsin Press, 1968), pp. 40, 93, 103.
2. Newton Arvin, "Melville and the Gothic Novel," *New England Quarterly*, 22 (1949), 38.
3. Herman Melville, *Moby-Dick* (New York: The Bobbs-Merrill Company, 1964), pp. 132–33. All other references to *Moby-Dick* refer to this edition and are cited parenthetically.

The Time and Place of Edgar Rice Burroughs's Early Martian Trilogy

BENJAMIN S. LAWSON

■ Edgar Rice Burroughs once claimed that he was "born in Peking and raised in the Forbidden City." Actually he was from Chicago. Readers of Burroughs usually have been attracted by his exotic and fantastic "Forbidden City" elements, which seem most amenable to mythic or psychological interpretations. "Much of Burroughs," writes George T. McWhorter, "is understood and appreciated in the context of the times in which he wrote, but much of it is also timeless, and it's this timelessness which his critics have tried to put their fingers on," the fantastic here equated with the timeless. Yet Burroughs deals not only with earthly realities but also the contemporary realities of an early twentieth-century America in which tradition was confronting innovation and "the scale and scope and speed of change were unprecedented."[1] As John Cawelti has expressed it, "Those patterns characteristic of a number of different formulas presumably reflect basic concerns and valuations that influence the way people of a particular period prefer to fantasize."[2] American utopias are often set in America. The radical alienness imagined in more recent novels like Stanislaw Lem's *Solaris* (so completely an inscrutability that the very definition of communication cannot be applied to it) was foreign to Burroughs's brand of earth, American, and male chauvinism. Carl Sagan's comment that "Mars has become a kind of mythic arena onto which we have projected our earthly hopes and fears"[3] is intended to indicate a liberating of the imagination, but actually implies that these projections can be after all only parochial.

In July of 1911 Burroughs was engaged in his latest attempt to earn a comfortable living—the marketing of pencil sharpeners. The attempt, which followed other careers as cowboy, salesman, and soldier, was apparently failing. Believing in the dominant capitalistic creed of the times and always willing to take risks in the hope of unexpected bonanzas, he turned at the age of 37 to a

Extrapolation, Vol. 27, No. 3, ©1986 by The Kent State University Press

new business: writing. What he wrote can be read as his many daydreamed escapes from the frustrations of his professional failures. Although for a time he continued to work in Chicago giving business advice to the subscribers of the business journal *System*, he soon honed his newly discovered talents as an author with such great success that by 1923 he had become the first American writer to incorporate himself.[5]

The unprecedented achievement of a mass audience and his unashamed acceptance of literature as just another business are reflected in many statements by Burroughs. Had he acquired an adequate fortune by other means he probably "should never have written a story." He had a family to support and wrote for money, "not from motives of sentiment. . . . This story business is all new to me, but I like the work provided I can make it pay."[6] Even his early pseudonym, "Normal Bean" (misprinted as "Norman Bean" by his first editor), functions as a reminder that no matter how outrageous the story might be, its author is a regular guy. Burroughs's candor about his motivations clearly indicates a tacit acceptance by his readers that popular fiction had arrived at the status of an entertainment industry. They continued to buy thousands of copies of his books despite Burroughs's apparent scorn for them, as in his account of the pulp fiction he had read before 1911: "If people were paid for writing rot such as I read I could write stories just as rotten."[7] No refusal here to compromise precious artistic standards for the sake of wealth.[8] Indeed, Burroughs was always careful about retaining book rights and was not unwilling to follow editors' prescriptions in writing his novels. The settings and plots of, for example, *The Outlaw of Torn* and *The Gods of Mars* were suggested to Burroughs by *All-Story* editor Thomas Newell Metcalf.[9] We can recognize Burroughs speaking through John Carter in the opening pages of his first novel, *A Princess of Mars:* "I determined to work my way to the southwest and attempt to retrieve my fallen fortunes in a search for gold."[10]

Burroughs's self-conscious insistence on literature as a business, which might seem artistically and ideologically naive and retrograde to an elitist critic, can be understood by listing a few other key intellectual events of the year of *A Princess of Mars* (1912). Against this progressive background, Burroughs's affiliations with a Victorian code of manners, American middle-class values, and the genteel tradition are particularly striking—making his contribution seem insignificant. While Burroughs sat in his small Chicago office, Sherwood Anderson literally walked away from his Ohio factory to Chicago and a life of art; Vachel Lindsay began an odyssey from Illinois with "rhymes to be traded for bread"; Ezra Pound searched for a meaningful poetic tradition in the troubadour country of France. In what both Willard Thorp and Hugh Kenner have called an *annus mirabilis* in American poetry, Harriet Monroe founded the progressive *Poetry: A Magazine of Verse*.[11] Dreiser's *Sister Carrie* finally made its official public appearance. Charles Beard's revisionist *The Supreme Court and the Constitution* brought a new emphasis on scientific method and

economic motive. The left-wing *The Masses* began its run as one of a large number of socially aware and politically partisan magazines, and the socialists won nearly a million votes in the presidential election. W. C. Handy's "Memphis Blues" enjoyed popularity, in the era of jazz, ragtime, and Charles Ives. Controversy resulted from the production of *Afternoon of a Faun* and, during the following year, *The Rites of Spring*. Walt Kuhn and Arthur B. Davies were organizing the internationalist and generally avant-garde Armory Show of modern art, which was to have a profound impact on American art and popular preferences. An English translation of *An Interpretation of Dreams* reinforced the fascination of American intellectuals for the psychoanalytical theories of Freud; John Watson was propounding the earliest behaviorist ideas; and in his mind, Albert Einstein was remaking the physical universe.

The role of a fantasy writer in the period which culminated in World War I would appear obvious. Burroughs furnished a ready escape from and predictable formulas in uncertain and stressful times. In so doing, he was able to establish, or at least popularize, major genres of "lowbrow" literature.[12] "Burroughs turned the entire direction of science fiction from prophecy and sociology to romantic adventure, made the major market for such work the all-fiction pulp magazines, and became *the* major influence on the field through to 1934."[13] Soon to follow were the all-science fiction magazines of Hugo Gernsback and others.

Burroughs's mix of action, exotic setting, and love interest, with little hard science, has also had an important effect on fantasy fiction and "sword and sorcery" literature (particularly since writers and general readers have never been as preoccupied with generic distinctions as modern academicians seem to be). Critics have discovered both direct influences on Burroughs—Edwin Lester Arnold, H. Rider Haggard, even Madame Blavatsky—and, more important here, disciples of Burroughs—Charles B. Stilson and J. U. Geisy—in the period of his first books.[14] These early works include the Martian trilogy *A Princess of Mars*, *The Gods of Mars*, and *The Warlord of Mars*.[15]

In Burroughs's novels "a retreat to the primitive" and the simple, a "flight from urban culture and rational thought," comparable to Gaugin's, logically results from the threat of a congeries of forces at work early in the century: industrialization, the growth of big business and labor, urbanization, immigration, and imperialism.[16] The American population had increased from about forty million to over ninety million between 1870 and 1910. Many new Americans—over a million a year, mainly new immigrants, during the peak years from 1900–1914—constituted a largely urban, cheap labor force that became the subject of both settlement-house reform and nativist attack (the midwestern evangelist Billy Sunday invaded American cities in 1912 to take on the devil on Satan's own immoral, foreign, liberal, clearly non-Protestant grounds). Industrial and technological change, the immigrant and his unfamiliar tenement world were strange to many Americans. Perhaps Brian Aldiss is exaggerating

only a little in his conclusion that "the important thing for ERB and his devotees is a loathing of urban culture . . . and a mystical obsession with land, purity of blood, courage, leadership, and rape," and a preference for "women dragged away by their hair, sentries being killed barehanded, endless blood-letting, and inferior races breeding like rabbits." Ironically, Burroughs could cash in on these fantasies only in a modern American capitalistic society.

In this spirit, John Carter's voyage is "a nostalgia trip to the past," to a Mars organized into tribal units, clans, or feudal monarchies.[17] Violence is a way of life, and Carter achieves his purposes—usually the rescuing of Dejah Thoris—by killing hundreds of Martians. In *The Warlord of Mars*, he recalls fighting with his friend "through long, hot Martian days, as together we hewed down our enemies until the pile of corpses about us rose higher than a tall man's head" (p. 60). Only the physically fittest survive on an atavistic Mars "where bloody strife is the first and greatest consideration of individuals, nations, and races" (*A Princess of Mars*, p. 133).[18] The very flora and fauna of the planet are threatening, and Carter frequently credits his success to instincts over which his conscious mind has lost control. This reliance upon warfare as an answer to problems, this callous fascination with maiming described in the interminable and numerous battle scenes, makes the Mars series a sort of pornography of violence.[19]

Burroughs's typical themes of love and adventure—or, with different emphasis, sex and violence—are rooted in the fantasies made possible and appropriate by his exotic worlds, and no doubt explained by Freud. Peter Nicholls calls *A Princess of Mars* "a fantastic product of frustration and day-dream" and Aldiss finds that Jung's theories "illuminate something compulsive and repetitive in Burroughs's output."[20] Carter's playing out of sex and power fantasies does not, however, so much remove him from history as from its circumstantial trappings. Carter's desire for power takes him to Mars and, once there, makes him the "warlord" of the planet by the end of the trilogy. Had Mars not been named after the Greek god of war, the god of Carter's profession, Carter would have remained in the Arizona cave where the Apaches had cornered him, stranded in a formula Western. But he wills himself out of both the tomb-like cave and his own body to be reborn—"naked as at the minute of my birth" (*A Princess of Mars*, p. 19)—on Mars, where he finds himself standing next to an incubator of Martian eggs. Mars is a world where beings have an immense longevity, where healing salves enable one to be immediately ready for the next battle. By the conclusion of *A Princess of Mars*, with the aid of the extraordinary physical powers with which he is invested by Mars' lesser gravity, John Carter becomes the savior of Mars. The Martians are more than grateful for his plans to restart the atmosphere plant: "they loved you also, and fairly worship your memory as the savior of Barsoom" (*The Gods of Mars*, p. 120).

In the next volume, Carter, having appeared from another world, unseats the

old gods of Mars by revealing that they are self-seeking impostors. Issus, Goddess of Death and of Life Eternal, turns out to be a repulsive old hag, "a screaming, gibbering maniac" whom Carter shakes like "a rat" (*The Gods of Mars*, pp. 186–87). He violates a sacred law of Martian religion which makes it blasphemous—as well as hazardous—to return from the precincts of the Holy Therns: "He who be once dead may not live again" (p. 145). Earlier an alien on Mars, Carter has so assimilated Martian culture that he would now feel an alien on Earth.

In *The Warlord of Mars*, Carter continues to disembarrass Martians from the trammels of the old faith, stopping only when he gains sovereignty of even the mysterious poles of Mars and becomes "Jeddak of Jeddaks, Warlord of Barsoom!" (p. 158). Carter's title inscribes the peculiar merging of violence and religion in the books; his coronation and his title give a religious sanction to libidinous energies otherwise excluded from civilized communities. Whereas Captain Ahab discovered that physical assaults upon all that thwarts one are not efficacious, Captain Jack finds that they work quite well. The early John Carter novels are escapes from social reality, but not from psychological realities such as the need for wish fulfillment. Burroughs explained the rationale for this stepping aside from history in a proposed jacket blurb for *Savage Pellucidar:* the book will take you away from "the terrors of a world gone mad with hate—to the cleaner, finer terrors of prehistoric hunting beasts and savage, primeval men."[21]

Carter simultaneously becomes warlord of Mars and regains his wife, "a world's most beautiful woman" (*The Warlord of Mars*, p. 158), "whose eternal youth and undying beauty were but outward manifestations of a perfect soul" (*The Warlord of Mars*, p. 75). Carter's pursuit, rescue, and defense of Dejah Thoris have constituted the substance of his martial as well as his marital life (although he and Dejah had earlier settled down long enough to have an egg). His dashing exploits in her name give the books the archaic flavor of sword and sorcery. The reader's and Carter's power fantasies and sexual fantasies are both satisfied in the final possession of Dejah Thoris, for whom the violence has been perpetrated. Lupoff perceptively notes "Burroughs's fear of and annoyance with feminine dominance," so that "the appropriate Burroughs hero [must] set out to alter society so as to establish masculine domination." The fictional world must be the hero's to save, while in the real world the various women's movements were becoming increasingly conspicuous and, to some, sources of insecurity. Before the final tableau can be presented, the hero must thwart the violence planned against the heroine. "It is a basic characteristic of Burroughs' work that the erotic is developed by a tension between the hero's awareness of the heroine's physical beauty and a threat—usually explicit—to her virtue." Possible rape can be described, but sexual intercourse is never mentioned; we are presented with either a prepubertal world" or with an orgy of violence.[22] Apparently the warlike Martians, generally chaste and lacking

"that brute passion which the waning demands for procreation upon their dying planet has almost stilled" (*A Princess of Mars*, p. 65), can express themselves only through violence. Even for John Carter "blood-lust" can only mean the love of battle. Mars is a singularly loveless world which lacks mature sexuality, a world which suggests images of male sexism, the West, and even Eliot's Waste Land ("There is shadow under this red rock").

Miscegenation and even bestiality are among the prime menaces to Dejah Thoris. For all his high-mindedness, Carter's responses to exhibitions of the animal passion are a mixture of prurience and apprehension: the fifteen-foot tall, six-limbed, green Tal Hajas turns the "fiendish leer" of his "bestial countenance" upon Dejah, "while his enormous bulk spread itself out upon the platform where he squatted like some huge devil fish" (*A Princess of Mars*, p. 96).[23] "The thought that the devine Dejah Thoris might fall into the clutches of such an abysmal atavism started the cold sweat" on Carter, who hopes that she would prefer suicide, as did those "brave frontier women" of America "who took their own lives rather than fall into the hands of the Indian braves" (p. 65).[24] The yellow Salensus Oll, who has designs on Dejah in *The Warlord of Mars*, is "a great mountain of a man—a coarse, brutal beast of a man" (p. 136). That these lechers are also tyrants is a measure of Burroughs's conception of male uses of power. Later, Dejah falls "into the clutches of that archfiend, Thurid, the black dator of the First Born" (p. 141), in the novel completed during a time when lynching was still far too common and when licentious blacks were indiscriminately chasing white females in *The Birth of a Nation*. In Burroughs's own Tarzan ("white-skin") books the Anglo-Saxon hero was putting down miscellaneous individual or collective black insurrections—at a time when the Ku Klux Klan remained a powerful force in American life, while more and more rural Southern blacks migrated to Northern cities. In *The Gods of Mars*, Carter had even feared Dejah's being "torn and rended by the cruel fangs of the hideous white apes" only "to be served as food upon the tables of the black nobles" (p. 161). Prudery, the sexual and the sexist, and racism are compounded in bizarre ways, but ways which Nicholls finds typical of Burroughs.[25]

As suggested before, America possessed its own primitive space in the West. Passages early in *A Princess of Mars* can be disorienting to first-time readers of Burroughs brought up on firm generic distinctions: "Arming myself with my two Colt revolvers and a carbine, I strapped two belts of cartridges about me and catching my saddle horse, started down the trail" (p. 13). Burroughs is credited as a major contributor to a new and hybrid form, the "space opera" (as opposed to "horse opera"), described as "those works which have the typical structures and plots of Westerns, but use the settings and the trappings of science fiction." John Carter, "perhaps the first important space opera character," is a "Western story figure who somehow strayed across the border into science fiction."[26] Even after he escapes the Apaches by teleporting to Mars,

Burroughs's protagonist continues to inhabit a world of familiar mythic and psychic dimensions. Burroughs's Chicago in the nineteenth century was in many ways still a frontier town, and Burroughs himself was, at one time, a soldier and a cowboy in the West. He often depicted the Indian, writes Aldiss, "directly or indirectly." Leslie Fiedler considers this presence of the native American as one of the conceptual links between the Western and science fiction. American writers imagine any new world to be "inhabited by hostile aliens" because they have imagined the West in this way. Unless extraterrestrials await us "whom we can assimilate to our old myths of the Indian, Outer Space will not seem an extension of our original America, the America which shocked and changed Europe, but a second, a meta-America, which may shock and change us." Perhaps the moon or Mars "will turn out to be a true archetypal equivalent to the Way West."[27] John Carter cannot disassociate the first warriors he sees on Mars from "those other warriors who, only the day before," had been pursuing him (*A Princess of Mars*, p. 24). He is later struck by "the startling resemblance" a bedecked group of red Martians "bore to a band of the red Indians of my own Earth" (p. 123). In marrying the resplendent and nearly naked Dejah Thoris, Carter plays John Smith (another Virginia soldier whose personal motto was *to conquer is to live*) to the Pocahontas of Hart Crane's *The Bridge*. Dejah is "the mythological nature-symbol chosen to represent the physical body of the continent, or the soil." "Who is the woman with us in the dawn? . . . whose is the flesh our feet have moved upon?"[28] In 1893 Frederick Turner had announced the closing of merely the actual West, not the mythic West. Those important Wests of the mind could only be born from the death of the real one. The region has been often displaced in American science fiction, from the West and the past to other worlds and the future. Although the locale of John Carter's adventures changes from Earth to Mars, even the landscape and climate remain much the same. Carter opens his eyes upon the "strange and weird landscape" of Mars, but his last glimpse of Arizona—a state admitted to the Union in 1912—had been "of some dead and forgotten world, so different is it from the aspect of any other spot upon our earth" (*A Princess of Mars*, p. 20). Burroughs's depiction of Barsoom probably owes much to Percival Lowell, whose books on Mars, its canals, and possible life forms had just appeared and whose observatory was in Arizona. This picture of a desert land has "decisively influenced" later science fiction; "when Americans land on another world, it seems they expect it to resemble the American West."[29]

The transferral of the the native American to another planet and the constant threat of miscegenation, are not the only racial fantasies enacted in Burroughs's Mars novels. In his ethnic consciousness, Burroughs is atypical of science fiction writers whose orientation toward the future has, in the main, allowed them to assume an improvement in race relations, and in whose works "the presence of unhuman races, aliens, and robots certainly makes the differences between human races seem appropriately trivial." Burroughs's cast of more or less

anthropomorphic characters comes in all colors: red, green, black, white, yellow, and blue. The xenophobia and racism of 1912 has been transferred from Earth to Mars in almost a caricature of the races. The men of Okar, for example, have "skins the color of a ripe lemon" (*The Warlord of Mars*, p. 86). The final despot slain by Carter is the malevolent, yellow Salensus Oll, whose defeat is a redaction of the same cultural and ethnic insecurities and fears found four years later in Oswald Spengler's *The Decline of the West*. Scholes and Rabkin point out that in pulp science fiction, "when it was fashionable to think of the 'Yellow Peril,' the villains in series like *Flash Gordon* could be expected to have a Mongolian appearance."[10] (In the much later *Tarzan and "The Foreign Legion"* the Japanese are directly depicted as subhuman "monkey-men.")

Burroughs's consciousness of the parallels of Mars to Earth is illustrated in Carter's statement that the black pirates of Barsoom are handsome, "odd as it may seem for a Southerner to say it" (*The Gods of Mars*, p. 57). Carter is a veteran "of a state which had vanished with the hopes of the South" (*A Princess of Mars*, p. 12) and "a typical southern gentleman of the highest type" whose "slaves fairly worshipped the ground he trod" (*A Princess of Mars*, p. 5). John Carter makes an Anglo-Saxon stand against the encroachments of a heterogeneous lot of enemies both domestic and foreign.[11] Burroughs plays the amateur anthropologist and popular scientist in his speculation that there has been a great declension from the ancient high civilization of a "fair-haired, laughing people" (*A Princess of Mars*, p. 66). Thomas Clareson notes that this impossible "yearning for the past" stands behind the popularity of the many "lost race" novels in the H. Rider Haggard tradition.[12] The green men have lost nearly all altruism and sentiment, and now "rove the deserted cities and dead sea bottoms of Mars" (*A Princess of Mars*, p. 38). Ghosts of earlier peoples haunt the land, as they do in Ray Bradbury's *The Martian Chronicles* and Zane Grey's Western novels.

At first, John Carter is a partisan in the constant warfare among the races and clans of Mars. He assists in the rebellion of the white female slaves against their black masters; he slays various villains of all six "races." But in the triumphant conclusion of *The Warlord of Mars*, all of Carter's closest friends—each the highest type of his race, whether yellow, black, white, red, or green—come to his aid in the institution of a just pan-Martian government which is to put an end to divisiveness.

This fantasy of cooperation and amalgamation is suggested earlier in the trilogy in a variety of ways.[13] Martian telepathy, for instance, has lowered barriers of communication among peoples. More importantly, Burroughs informs us that the three major races of Mars, the most human in earthly terms, had been "the blacks, the whites, and a race of yellow men," and that "the present splendid race of red men" (*The Gods of Mars*, pp. 106–07) is the result of earlier intermarriage. This new race, the most advanced on the planet, has almost

regained the level of the ancient "arts of the fair-haired Martians" (*A Princess of Mars*, p. 62). Guilt about the vanishing native American has been expiated in the creation of a new Martian, and through the marriage of Martian Dejah Thoris to white man John Carter. Through his various disguises Carter has experienced life as a red Heliumite, a white Thern, and a yellow Okarian. Although he could never pass as a Thark,—the fifteen-foot tall, four-armed, tusked green men—his best friend is Tars Tarkas, a Thark. Fiedler found this blood-brotherhood with an alien in a frontier setting typical in American literature. Or, putting this theme into another context, a key characteristic of stories about alien states or beings is "our dream that the unknowable can be known and related to in some meaningful fashion."[14] So *The Warlord of Mars* ends with a vision, a tribute to Mars for the dreams it has made possible. Desires for peace (though the means has been violent), brotherhood (yet Carter also achieves the ultimate power fantasy), and love (for the time being not threatened by lust) are satisfied. Finally, the attainment of one desire means the attainment of all:

> Twenty-two years before I had been cast, naked and a stranger, into this strange and savage world. The hand of every race and nation was raised in continual strife and warring against the men of every other land and color. Today, by the might of my sword and the loyalty of the friends my sword had made for me, black man and white, red man and green, rubbed shoulders in peace and good-fellowship. All the nations of Barsoom were not yet as one, but a great stride forward toward that goal had been taken, and now if I could but cement the fierce yellow race into this sodality of nations I should feel that I had rounded out a great life-work, and repaid Mars at least a portion of the immense debt of gratitude I owed her for having given me my Dejah Thoris (pp. 153–54).

As on earth, peace is only a truce; carnage and warfare continue beyond Carter's reign and are central to the final seven or eight Mars novels. Precisely what is missing in the Martian trilogy is what H. P. Lovecraft saw as the sine qua non of interplanetary fiction: "a deep, pervasive sense of strangeness—the utter, incomprehensible strangeness of a world holding nothing in common with ours." Although formula science fiction, writes Aldiss, "allays anxiety by showing us that the world is what we expect," this is "the message sf should not deliver. Astonishment is everything."[15] Edgar Rice Burroughs was indeed from the Forbidden City; however, he was also from Chicago.

Notes

1. Robert Scholes and Eric S. Rabkin, *Science Fiction: History, Science, Vision* (New York: Oxford Univ. Press, 1977), p. 12; McWhorter, "Edgar Rice Burroughs . . . Dead or Alive," *Fantasy Review* 8 (August 1985): 9; Peter Conn, *The Divided Mind: Ideology and Imagination in America, 1898–1917* (New York: Cambridge Univ. Press, 1983), p. 12. For an earlier treatment of the period of Burroughs's first books see Henry F. May's cultural history *The End of American Innocence: A Study of the First Years of Our Own Time, 1912–1917* (New York: Knopf, 1959).

2. Cawelti, *Adventure, Mystery, and Romance: Formula Stories as Art and Popular Culture* (Chicago: Univ. of Chicago Press, 1976), p. 33.
3. See Sacvan Bercovitch, *The Puritan Origins of the American Self* (New Haven: Yale Univ. Press, 1975), p. 146.
4. *Cosmos* (New York: Random House, 1980), p. 106.
5. Irwin Porges, *Edgar Rice Burroughs: The Man Who Created Tarzan* (Provo, Utah: Brigham Young Univ. Press, 1975), p. 1 (the thorough modern biography); Richard A. Lupoff, *Edgar Rice Burroughs: Master of Adventure* (New York: Canaveral Press, 1965), p. 220.
6. Porges, p. 7. Fans have joined Burroughs in his later declarations that, once started, he became interested and intellectually involved in his work.
7. Quoted in James Gunn, *Alternate Worlds: The Illustrated History of Science Fiction* (Englewood Cliffs, N.J.: Prentice-Hall, 1975), p. 108.
8. Compare the aesthetic responses of mainstream writers like Herman Melville, Henry James, and, in Burroughs's time, Ezra Pound, whose decisions were that, no, they could not write that "rotten."
9. Sam Moskowitz, *Under the Moons of Mars: A History and Anthology of "The Scientific Romance" in the Munsey Magazines, 1912–1920* (New York: Holt, Rinehart and Winston, 1970), p. 299; Porges, p. 143.
10. *A Princess of Mars* (New York: Ballantine Books, 1963), p. 12. Texts of the sequels also by Ballantine Books, 1963. *A Princess of Mars*, carrying the title "Under the Moons of Mars," was originally serialized in *All-Story*, February through July of 1912; *The Gods of Mars*, January through May of 1913; *The Warlord of Mars*, December 1913 through March 1914.
11. Lindsay quote from title of a pamphlet distributed by Lindsay. Louis Untermeyer, ed., *Modern American Poetry* (New York: Harcourt, Brace, and World, 1962), p. 216. Thorp in Robert E. Spiller et al., *Literary History of the United States*, 3rd ed., revised (New York: Macmillan, 1963), p. 1171; Hugh Kenner, *The Pound Era* (Berkeley: Univ. of California Press, 1971), p. 232.
12. McWhorter lists forty-five editions of *A Princess of Mars* in "Bibliographer's Corner: *A Princess of Mars*," *Edgar Rice Burroughs Quarterly*, 1 (Fall 1982), 38–45. Even spokesmen for high culture do not find Burroughs responsible for instigating these corruptions: by 1900 the United States "had entered a new era of mass culture, in which the lowest common denominator of taste quickly proved to be a frighteningly powerful arbiter." See Kenneth S. Lynn, *The Air-Line to Seattle: Studies in Literary and Historical Writing about America* (Chicago: Univ. of Chicago Press, 1983), p. 81.
13. Moskowitz, p. 291. Brian Aldiss has dubbed the "two sorts of vision, the Wellsian and the Burroughsian, or the analytic and the fantastic," in *Billion Year Spree: A True History of Science Fiction* (New York: Schocken Books, 1973), p. 168. Few critics have taken Burroughs's style seriously, although Darko Suvin has recently commented that he is "a reasonably brisk writer on the level of the sentence," in "An Interview with Darko Suvin," *Science-Fiction Studies* 12 (July 1985): 207.
14. Richard Kyle, "Out of Time's Abyss: The Martian Stories of Edgar Rice Burroughs," *Riverside Quarterly* 4 (January 1970): 121. See also Moskowitz, pp. 78–99, and Lupoff, p. 32.
15. That the three novels constitute a planned trilogy is clear from their having a single hero and heroine and their narrating a single story which culminates in *The Warlord of Mars*. See Lupoff, p. 59.
16. Aldiss, p. 169. For the motive at work in another popular form see Gary Topping, "The Pastoral Ideal in Popular American Literature: Zane Grey and Edgar Rice Burroughs," *Rendezvous* 12 (Fall 1977): 11–25. Lupoff, pp. 48–52, cites *The Mucker*, *The Cave Girl*, and *The Cave Man* as books in which life in the wilds has a therapeutic and regenerative force for the protagonist. Life away from the effete East has a similar effect on, for example, Adam Larey of Grey's *Wanderer of the Wasteland* (1923).

17. Aldiss, *This World and Nearer Ones: Essays Exploring the Familiar* (Kent, Ohio: Kent State Univ. Press, 1981), p. 199; Paul A. Carter, *The Creation of Tomorrow: Fifty Years of Magazine Science Fiction* (New York: Columbia Univ. Press, 1977), p. 67.
18. For a discussion of Burroughs as specifically indebted to Darwin, see Kyle p. 121.
19. And morbidity. In *The Warlord of Mars* Carter describes the silent walk through the Carrion Caves: "The only sound above our breathing was the sucking noise of our feet as we lifted them from the ooze of decaying flesh through which we crept" (p. 85).
20. *The Science Fiction Encyclopedia* (Garden City, N.Y.: Doubleday, 1979), p. 96; *Billion Year Spree*, p. 168.
21. Quoted by Lupoff, p. 116.
22. Lupoff, pp. 211–12; Thomas D. Clareson, ""Lost Lands, Lost Races: A Pagan Princess of Their Very Own," in Clareson, ed., *Many Futures, Many Worlds: Theme and Form in Science Fiction* (Kent, Ohio: Kent State Univ. Press, 1977), p. 136; Aldiss, *Billion Year Spree*, p. 167.
23. This image seems to anticipate Jabba the Hut of *Star Wars*, just as Burroughs's banths and Jeddaks suggest banthas and Jedis. Burroughs's psychosexual messages were promoted by his contemporary illustrators: the serial version of *The Warlord of Mars* showed a manacled Dejah Thoris, a guard, and a distant four-armed Martian with his spear. Described by Moskowitz, p. 357.
24. For a humorous compilation of thwarted rapes (76 total in all but one of Burroughs's books written between 1911 and 1915!), see Richard D. Mullen, "Edgar Rice Burroughs and the Fate Worse than Death," *Riverside Quarterly* 4 (June 1970): 186–91.
25. *The Science Fiction Encyclopedia*, p. 97. Destructive and sadistic aspects of male sexism are discussed in an article dealing with the late Victorian period and mentioning Wells's Dr. Moreau, by Coral Lansbury, "Gynaecology, Pornography, and the Antivivisection Movement," *Victorian Studies* 28 (Spring 1985): 437. She finds that "the ultimate pornography" "was the abuse of authority, the delight in the spectacle of pain, and the sexual subjection of the weak by the strong."
26. Scholes and Rabkin, p. 171; Carter, p. 61. A treatment of the blurring of these generic distinctions in two recent novels is Robert Murray Davis, "The Frontiers of Genre: Science-Fiction Westerns," *Science-Fiction Studies* 12 (March 1985): 33–41.
27. Aldiss, p. 168; Fiedler, *The Return of the Vanishing American* (New York: Stein and Day, 1968), p. 27.
28. Louis D. Rubin, Blyden Jackson, et al., eds. *The History of Southern Literature* (Baton Rouge: Louisiana State Univ. Press, 1985), p. 26; Brom Weber, ed., *The Complete Poems and Selected Letters and Prose of Hart Crane* (Garden City, N.Y.: Doubleday, 1966), pp. 248, 57.
29. Carter, p. 62. Later volumes in the Mars series do, however, depict forest and arctic regions of the planet.
30. *Science Fiction: History, Science, Vision*, p. 188. A real-life manifestation of anti-Oriental sentiment was the so-called Gentleman's Agreement of 1907, whereby the school board of San Francisco would allow Japanese students to attend if the Japanese government would issue no more passports to would-be Americans.
31. The failures of turn-of-the-century English imperialism have been interpreted as parallel to Kipling's decline as an artist and as an explanation for the popularity of the British, paranoiac invasion literature of the period, like Erskine Childers's *The Riddle of the Sands*. See Samuel Hynes, *The Edwardian Turn of Mind* (Princeton, N.J.: Princeton Univ. Press, 1968), pp. 15–53. Imperialism lives on, states Aldiss (*This World and Nearer Ones*, p. 95), in the ritualistic fantasies of writers like Burroughs and E. E. Smith. An unfortunate example of the condescending and paternalistic treatment of "exotic" peoples is the entire "authentic" Philippine village featured at the 1904 St. Louis World's Fair.
32. Clareson, p. 137.

33. A notable and interesting presentation of this idea from the first decade of the century is Israel Zangwill's popular play *The Melting-Pot* (1908). In an "Afterword" published in 1914 Zangwill idealistically imagines that the "process of American amalgamation is not assimilation or simple surrender to the dominant type, as is popularly supposed, but an all-round give-and-take by which the final type may be enriched or impoverished" (p. 203). With such size and open space, nations like the United States should remain multi-ethnic and not "mistake themselves for mere countries," which would be "an intolerable injustice to the rest of the human race" (p. 210). The stricter immigration quotas were still in the future. Israel Zangwill, *The Melting-Pot* (New York: Macmillan, 1926).
34. Cawelti, p. 49.
35. Lovecraft quoted in Carter, pp. 67-68; Aldiss, in *This World and Nearer Ones*, p. 95.

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Utopia in the Pulps: The Apocalyptic Pastoralism of Edgar Rice Burroughs

MICHAEL ORTH

■ Edgar Rice Burroughs wrote more than seventy books, and at least fifty of them contain elements of utopian thinking—that is, they offer more or less detailed presentations of imaginary cities, peoples, or nations which the author clearly wishes his readers either to admire or detest; and they express a conservative vision of human history and possibility (Orth). Over and over again, Burroughs takes his reader to a lost valley city or to a new world and shows him a society which pretends to be perfect, but which proves to be terribly flawed; in fact most of Burroughs's fiction reveals both a desire for utopia and fear of it. The conservative vision has always been strong in utopias. For example, the most famous utopia, Sir Thomas More's, is essentially conservative, as is the most famous American utopia, Edward Bellamy's *Looking Backward*. Both were the products of men suspicious of real social change, and interested rather in the perfection of traditional modes. Some students of the history of modern consciousness have even argued that such a conservative fatalism is the fundamental structure of modern belief (Chiaromonte). The desire for perfection, or at least improvement, even if only the negative improvement of escape, combined with an almost Calvinist pessimism about the possibility of positive social evolution, remains a lively element in contemporary science fiction, and a dilemma for anyone proposing social reform or writing utopian fiction in America.

In his utopian focus, Burroughs is in harmony with his times. The last decades of the nineteenth century were full of utopian tales which provided challenges to the rapid economic expansion, urbanization, and industrialization of America (Pfaelzer). Burroughs experienced his greatest success just when America shifted from a rural to an urban nation, and just as Americans began to dream of fleeing their chaotic cities to the new garden suburbs to avoid the

Extrapolation, Vol. 27, No. 3, ©1986 by The Kent State University Press

social and institutional changes taking place as urban life developed. Remembering Burroughs's desire for and suspicion of utopia helps us understand the suspicion and fear of change which still dominate conservative and populist reactions to reform, as well as to the literary acts of social imagination which science fiction so often provides. In most popular stories, as too often in history, apocalyptic destruction must precede utopian reform, so most sensible humans reject even the thought of such painful and radical changes.

Burroughs began his first book, *Dejah Thoris, Princess of Mars*, in 1911 with the hero, John Carter, going to sleep on Earth under the influence of drugs and waking up in a new and more exciting world, a Bellamite device readers of American utopian literature will recognize. The fantasy world of Mars, or "Barsoom," is the setting for a whole series of books which fascinated generations of adolescent readers, as later fantasy worlds have captivated the Trekkies and Duneites of the 1980s. While the settings and history of Barsoom are only incidental for Burroughs, part of the machinery of his story, they build into a gloomy vision of dead cities and dying civilizations that comments on the futility of Earthly hopes of progress. This attitude is fully in harmony with the theme of mutability which dominated so much nineteenth-century American metahistorical, or mythic, thinking (Holtsmark).

The next year, 1912, Burroughs created what is perhaps the most artistically powerful conservative vision of utopia as a state or condition rather than as a society, the Tarzan theme (Beauchamp, Topping). To form the Tarzan theme Burroughs adopted two ideas from romantic naturalism—cultural primitivism and beneficial atavism—and added to them two other elements: first the typical romantic insistence that if a man (or occasionally a woman) or a culture were to benefit from a return to the primitive, he must be of the finest civilized stock, and second, the sentimental irony that once the perfect man had been formed in nature, he would be forever disappointed with civilization, and yet be unable to deny his responsibilities to it.

Of course, the Tarzan theme remained a type of cultural primitivism, in the classic sense as defined by Arthur O. Lovejoy—avoiding or fleeing civilization in favor of savagery or a romantic primevalism. But most of Burroughs's stories, including those about Tarzan, are as much pastoral— they seek resolution of the conflict between nature and human life—as they are primitive, and the conservative pastoral theme is most important. In history, as in religion, a feeling of freedom arises from conscious submission to what is felt as necessity.

The escape in Burroughs's tales is flight from contemporary urban complication, from modernism, into pastoral myth. The pastoral ideal is clear throughout the Tarzan books, but we can find it in perhaps purest form at the end of the first story, when Tarzan dreams of "a patch of greensward surrounded by a matted mass of gorgeous tropical plants and flowers," of "mighty trees," of "the blue of an equatorial sky," and above all of a young woman who sat beside him as they ate "pleasant fruit and looked into each other's eyes and

smiled. They were very happy and they were all alone" (*Tarzan of the Apes* 218). In his longing for escape, as in so much else, Burroughs reflected the dreams of most of his fellow Americans, and the paradox they felt in expressing their individuality within an increasingly urban community which inevitably qualified individual freedom in the interest of an ideal of justice for all. Burroughs's stories are always conservative politically and socially. Once we recognize that, what seems the subversion of escape in the Tarzan stories is really a return to superior (and largely imaginary) traditional values and to an earlier, more vital stage of the inevitable process of history.

When Tarzan, John Carter, and all the other heroes of Burroughs's fiction bring change to the lost worlds they encounter, the change is to restore a lost order, to put a rightful prince back on the throne—and once the old order is restored, the hero leaves, headed back to his own static valley or peaceful kingdom. Burroughs's heroes never question the righteousness of the political and social order they support. It is always an aristocracy of the good, of the hero's friends, and that is enough.

In later Tarzan stories, the isolated plantation of Tarzan, operated by his faithful Waziri, provides a place apart where a pastoral middle ground between savagery and civilizations may be found. As the story of Tarzan continued, Burroughs gradually purified his theme until the average Tarzan story, like the later Barsoomian books, was deliberately about a static never-never land. Tarzan's African estates, in Burroughs's romances just as in the Hollywood films, became isolated utopias of natural peace where a paternal hero keeps a barbaric people in the early and virtuous stages of civilization until various forms of civilized viciousness intrude to provide plot conflict. The idea shows renewed popularity in such recent novels as *The Clan of the Cave Bear* (1980) and *The Dance of the Tiger* (1980), and in Burroughs's stories we simply see a particularly clear form of it. The cult has several parts. First, romantic conservatives since the time of James Fenimore Cooper have assigned the pioneer past responsibility for our present desirable traits, and wilderness, at least since the 1830s, has been symbolically the source of virtue. As a corollary, the savage who dwelt in the wilderness must be as virile and vital as the wilderness which engendered him. With the addition of popular social Darwinism at the end of the nineteenth century, the hero also naturally became full of fighting spirit, capable by definition of winning the battle for survival. Thus, the wilderness makes men good, and civilization makes them wicked, because in the wilderness men (seldom women) imbibe aesthetics and ethics from contemplation of the spirit of God as revealed in the woods, ocean, or desert. And the final point indentifying the cult of the primitive is that the contrast between a wholesome life in the midst of nature and the complex degeneracies of civilization frequently serve to satirize urban life, in the ancient fashion of the pastoral.

The Tarzan story is certainly Burroughs's most popular expression of a pastoral utopia, but for an understanding of the conservative myth in science

fiction another of Burroughs's successful series, his inner Earth or "Pellucidar" books, is more important. Burroughs wrote these stories early in his career—the first in 1914—when he still showed an easy faith in the American model for improving the world. In 1914, after all, it was still obvious (at least in pulp fiction) not only that the American Way was the best way, but also that it would be recognized as best by every right thinking tribesman who heard of it. Though the Pellucidar stories are swashbuckling pulp adventure, they are also typical early twentieth-century conservative utopias. In the typical fashion of conservative utopias, they substitute geographical change for the temporal change characteristic of liberal visions. If America is already nearly perfect, the best hope for improvement is to translate its best or true nature to some less enlightened spot. Our generation chose to bring democracy and development to Viet Nam, and later to Grenada and Nicaragua, but for Burroughs the imaginary valley, island, or world—not the future—is the setting for utopian development (Pfaelzer 17).

Throughout the Pellucidar series about the lost world inside our planet, Eurroughs's heroes struggle to reform the savage world they discover into a bourgeois American colony, somewhat along the lines of American efforts in the Philippines a few years earlier. In the second novel of the Pellucidar series Burroughs makes his utopian intentions clear when his hero declares, "It will not be long before Pellucidar will become as nearly a Utopia as one may expect to find this side of heaven" (Holtsmark 139). And by the end of the story most of the problems have been resolved, all the lost princesses have been rescued, and we are invited to feel that our heroes' plan to establish an outpost of Oak Park in Pellucidar is well under way (Flautz)

A further clarification in Burroughs's utopian ideas occurred in 1915; while he was grinding out his fifth Tarzan story, he stumbled on what was to be his typical utopian device. The story eventually became *Tarzan and the Jewels of Opar*, an adventure leaning heavily on H. Rider Haggard plot ideas, with Burroughs's usual unscrupulous Arab slavers, villainous European renegades, lustful bull apes, and frustrated but hopeful carnivores all revolving around the long-lost Atlantean colony of Opar (Moskowitz 342). The exotic civilization in the lost valley has gone downhill since its pseudo-biblical origins, and it is this feature which shows Burroughs's typical metahistorical argument clearly: all civilizations are virile and moral in their youth, but senile and degenerate in their old age. This historical fatalism is part of the secularization of deuteronomic historical ideas in the late nineteenth century, found in high culture in Brooks and Henry Adams, just as in mass culture in Edgar Rice Burroughs. The process was seen as inevitable, though liberals saw it as progress and conservatives as decline.

In Burroughs's hands this myth is a the corollary of the cult of the primitive; if nature makes us whole, then civilization will take us apart. Tarzan and Burroughs's other heroes hold civilization in contempt not only because of its

immorality and ambiguity, but because the course of civilization is inevitably tragic as humanity moves from the purity of nature to the decadence of Byzantium. The lost valley of Opar dramatizes the nineteenth-century myth of Robert Coles's "Course of Empire" series for the pulp readers of the twentieth century, thus reinforcing the typical conservative suspicion of reform and of utopian hopes. Reformation might be temporarily successful, but real change could come only through apocalyptic destruction and a new barbarism.

To understand Burroughs's attempts to dispel the Spenglerian gloom into which he had stumbled, we might consider in some detail three utopian stories he wrote during and shortly after the Great War. These are *Beyond Thirty*, *The Moon Maid*, and *The Land That Time Forgot*, each of which shows a typical version of the persistently tragic conservative vision as exemplified in Burroughs's metahistory.

Beyond Thirty, which Burroughs wrote in 1915, is not likely to ring the bells of memory, even for those who read avidly in the Burroughs's canon as they grew up, but it is a typical American isolationist reaction to the opening guns of the Great War, and incidentally one of Burroughs's closest approaches to conventional science fiction. It is set some year in our future when incessant warfare and chaos have caused the Western hemisphere, under the leadership of the United States, to sever all ties, including even historical memory, with Eurasia. Burroughs does not bother to describe the utopian institutions of the United States, except to make it clear that they are idealized versions of American institutions of 1914. This lack of social imagination should be no surprise, for a conservative can hope to restore or maintain but not to improve social institutions.

Jefferson Turck, the soldier-aristocrat protagonist, is the familiar pulp hero, though without the mythic dimensions of Tarzan or even John Carter. He commands an "aero-submarine" which patrols the thirtieth parallel, the boundary against intruders from the Old World of tainted Eurasia. In a storm his ship is forced ashore in England, and there Commander Turck discovers that most of Europe has degenerated into savagery under the stress of continual war. Large parts of Eurasia are divided between two opposing forces, a Christian conservative empire based in Ethiopia and a progressive, materialist Chinese empire.

Both the Ethiopians and the Chinese are sympathetically handled, though Burroughs cannot resist playing with the sexual-threat-to-white-women theme. Neither Ethiopians nor Chinese are perfect, but Burroughs clearly prefers either of them to the savage Europe which war has produced, and he prefers the rational scientism of the progressive Chinese, whose empire seems to be modelled on the pre–World War I Japanese, to the colorful barbarism of the reactionary Ethiopians, because the Chinese support science and social development, ideals which Burroughs usually praised though seldom successfully showed in action. Naturally Jefferson Turck prefers the technological and so-

cial progressivism of the Chinese too, and Burroughs lets him help the Chinese in their triumph over the Ethiopians.

Like other conservatives, Burroughs loved apocalyptic stories, and in 1919, after the war, when Russian Revolution replaced Teutonic imperialism as the Great Satan of conservatives, he began another pessimistic response to contemporary events in a series of connected tales which were eventually published as *The Moon Maid*. The story begins as a pulp fantasy of the peripatetic lunar adventures of Julian West—a hero whom the book specifically identifies as a descendent of Bellamy's hero in *Looking Backwards*. On the moon Julian discovers a totalitarian civilization of humanoids, and the usual Burroughs capture-escape-recapture plot begins cranking along, with plenty of imperiled virgins and hand-to-hand combat. Julian undergoes in a limited way the usual course of beneficial atavism, changing from an over-intellectual civilized man into an effective savage warrior. However, his development is not sufficient to defeat the Moon Men, who invade Earth with the assistance of a warped Terran scientist. The nations of the planet have been weakened by generations of peace, and Earth falls under the heel of a Lunar dictatorship.

At this point, Burroughs welded on a second novella, beginning a generation later than the unlucky lunar exploration of the first Julian. It is the story of life in the United States under the dominion of a speciously egalitarian lunar dictatorship and of the unsuccessful rebellion of old-fashioned Americans against their foreign oppressors. A new hero, descendent of the original Julian, leads the revolt, but Americans are insufficiently purified—many still fellow-travel with the Moon Men—and after the rebellion fails, America is reduced to a pastoral fief, whose inhabitants eventually degenerate to a collection of roving savages, culturally similar to the plains Indians of pulp fiction.

This cycle turns out to be America's salvation, because under pastoral conditions character returns. In the concluding section America rises under the leadership of still another Julian, and the remnant of the Moon Men, decayed after several generations of easy supremacy, is easily driven into the Pacific. Hope for the future may be entertained because love of pleasure, pacifism, and Los Angeles have been burned out of the savage remnant nation. *The Moon Maid* argues that only in the character of an Apache warrior is there hope for humans, because only such a hero can satisfy the fantasy of beneficial atavism and take bloody revenge on twentieth-century America for Burroughs and all his 200 million readers.

Red Hawk, twenty-first Julian West and triumphant hero of *The Moon Maid*, makes his system of warrior eugenics clear enough, but to see how it permeates Burroughs's work, this is how Tarzan, his greatest (and in some ways gentlest) hero puts it: "Show me the fat, opulent coward who ever originated a beautiful ideal. In the clash of arms, in the battle for survival, amid hunger and death and danger, in the face of God as manifested in the display of Nature's most terrific forces, is born all that is finest and best in the human heart and mind" (*Tarzan*

and the Jewels of Opar 150). Thus *The Moon Maid* reverses the argument for social reform which most earlier cataclysmic fiction expresses. For example, Jack London's *The Iron Heel* and Ignatius Donnelly's *Caesar's Column* show even greater emphasis than Burroughs's stories on bloodshed and disaster, but they could at least be read as cautionary tales, while in Burroughs's fantasy, the utopian future is possible only for aristocratic warriors. He argues that pacifism and a too-eager egalitarianism will destroy rather than redeem civilization.

Though *The Moonmaid* and *Beyond Thirty* show Burroughs's conservative suspicions of hopes for social improvement, a third speculative fiction Burrounghs ground out shortly after World War I reveals an even gloomier vision. This is one most readers will recognize, for Burroughs's *The Land That Time Forgot*, which first appeared as a magazine serial in 1918, is one of his better-known stories. The television version uses only the first part of the story, the adventurous entry into the lost world of Caspak and the battles with primitive monsters. In its full version *The Land That Time Forgot* dramatizes the poignant intellectual dilemma of conservatives in an original form, a dilemma from which Hollywood removed Burroughs's intellectual challenge to liberal hope and his evolutionary pessimism, for the sake of melodramatic adventure.

On the lost island of Caspak evolution operates as a present and individual force, not a ponderous and abstract theory. The creatures of Caspak advance individually through all the stages of evolution from egg to complete human being. On Caspak ontogeny recapitulates phylogeny not in the womb but on the surface of the island, and the lucky few rise through all the stages of chordates, living successively as reptiles, mammals, primates, and then humans—and even beyond, which is where the dystopian element enters.

Most of the dramatic action of Burroughs's story falls in the human stages of Caspakian life, for there he can work his chase-capture-escape mechanism most easily, but the theme of the story almost succeeds in overcoming the feeble romantic mechanisms. The problem of reconciling evolutionary determinism with romantic individualism exercised the whole generation of literary naturalists who immediately preceded Burroughs, and the pervasive concern for a synthesis of threatening scientific theory and comforting romantic belief appears on every page of *The Land That Time Forgot*. In tune with Burroughs's usual theme, individual prowess in savage combat shapes noble natures, leading to development of humans of the best type.

The fully evolved humans of Caspak are the Galu, Stone Age savages of the sort romantic primitivists adore. The Galu furnish some of the necessary heroines for the story, and their village is the setting for most of the conventional adventure, but another set of beings higher on the scale than humans live on Caspak too, for evolution and change do not stop—that is the real fear of conservatives and the fictional horror of Caspak. These higher beings are the Weiroo, a species Burroughs modelled on classic devils, with ghoulish admixtures. Like any good villains, they have powerful, though unspecified, mental

abilities which put them above ordinary men, at least on the microcosmic island of Caspak. All are male, ugly, and vicious, and as usual in the pulp scheme, their primary activity is abducting female humans for their harems, thus providing sexual thrills and plot material. But their real interest comes from Burroughs's suggestions that the Weiroos are the logical successors to humanity—that they, or something like them, are what we are headed for in our next evolutionary ascension. Clearly, this biological dread remains a strong element in science fiction and fantasy today.

Burroughs created similar superhuman creatures in other pulp adventure series, and while to a large degree all of them are simply conventional pulp horror creatures, Burroughs persistently presents biological advances on humans as something more than accident; the Weiroos are the result of evolutionary logic. Most of the advanced societies in Burroughs's fiction are inhuman, built by and for creatures who have gone beyond humanity into ghoulish new species (Holtsmark 49). Other pulp stories in general are conservative too, and post-human evolution, social or physical, is seldom imagined in anything like positive terms. Perhaps the basic dissatisfaction ordinary readers feel with the whole direction of rational, instrumental, and "progressive" civilization can be seen in the Weiroos of Caspak just as clearly as in the endless tales of Tarzan.

The next time Burroughs chose a notable utopian theme was in 1922 with *Tarzan and the Ant Men*, a rare Burroughs story in which irony is allowed a significant role. Characteristically, the satire is aimed not only at ideas for social reform but also at hopes of utopian perfection. On the surface the plot follows the lost valley formula. Tarzan, bored with his life on his utopian plantation, takes up flying and flies off alone from his secure jungle home and his loving, and by 1923 extensive, family. He flies over a part of the jungle he has never investigated before and crashes in an inaccessible valley.

In this valley, as in most of Burroughs's lost valleys, live two sets of people. Around the periphery, where Tarzan has crashed, dwell the Alali, a race of paleolithic savages, while in the broad central plain lies the domain of the Minuni, a race of barbaric white Lilliputians. The Alali, on the periphery, are dominated by their women—huge, powerful creatures. Tarzan is captured by one of them, escapes, trains an Alali male in natural masculine dominance, watches to see that his lesson will spread, and moves on. The episode is heavy-handed satire on feminism, or at least on a popular sterotype of it, but its role in the plot is typical of many other lost valley stories. The hero usually goes through some trial in a primitive tribe living on the edge of the romantic civilization which occupies most of the lost valley, and as he passes the trial he helps reform the savage tribe into a more "natural" cultural pattern, thus often releasing the natural vigor which their primitive life has given them. Many similar episodes in other stories show that Burroughs was a member in good standing of the conservative male chauvinist faction of his day (Pfaelzer 92).

Perhaps it was because Burroughs had so much fun satirizing the social

absurdity of matriarchy that he also made the next component of the formula, Tarzan's adventures with the more civilized race in the center of the valley, an extensive satire on American society of his day. After serving as a cultural catalyst for the primitive but perverted Alali, Tarzan moves out into the grassy plain which fills the center of the valley. There live the Minuni, a handsome race of white midgets only seventeen inches high, who ride about the plain on small antelope. They live in domed cities, like African termites, and their culture is a rough mixture of Formican communalism and romantic feudalism. There are several cities in the lost valley, but the only two Tarzan has much to do with are Veltopismakus, which has been ruined by luxury and faulty democratic ideas, and Trohandalmakus, whose citizens work hard and efficiently. The familiar elements of Swiftian satire appear in the story, and Burroughs attacks such common conservative bugaboos as government corruption, prohibition, and the new income tax.

All this gives a political dimension to the story, and Burroughs adds more general conservative shibboleths too; for example, a policy of positive eugenics is credited with creating the moral superiority of Trohandalmakus, while indiscriminate breeding undermines both the morality and the efficiency of Veltopismakus. Unfortunately, Burroughs lacked patience for the intricate coordination of fiction and reality which satire requires, and the plot soon deteriorates into his usual capture-escape sequence. A mythic hero like Tarzan is obviously out of place in a satiric setting, so Tarzan is "scientifically" reduced to Minunian scale, opening the gate to more swashing on the buckler.

Despite its limitations as a political novel, *Tarzan and the Ant Men* emphasized Burroughs's suspicion of organized political solutions to social problems, and indeed his suspicion of any change. Veltopismakus, the good society of the story, attains its virtue by deliberate return to an aristocratic warrior ethos, while the obvious fault of the bad society of Trohandalmakus lies in its attempt to alter the forms of society from traditional patterns.

Burroughs's clearest treatment of utopian hopes appeared during the uneasy years of the 1930s, when he found his personal and professional problems echoed the national agonies of the depression years. His family, which had always been important to him, began to disintegrate and at the same time his professional life became less secure because his fiction sold less readily to magazines. Science fiction was replacing scientific romance in the pulps, and the new science fiction writers had a flair for the unusual supported by the logical beyond anything Burroughs could attempt. His two best ideas—beneficial atavism and sword-and-science Barsoom—were anachronisms in a pulp industry which had fragmented into hard-hitting mysteries, grim-lipped Westerns, and chromium-plated stories of outer space. Burroughs responded with a series full of stronger satiric and dystopian elements than he had displayed earlier. This set of stories occurs on an imaginary Venus which Burroughs calls "Amtor," a world where gigantic forests replace the sprawling deserts of the

original Barsoomian series. While Burroughs did not bother to rework his plots—he still followed the old chase-capture-escape routine—the new setting allowed him to express a number of more or less good natured satires on the political and social ideas of the political left.

In the Amtorian series the conservative political function of the Burroughs hero becomes even clearer. Many of the plots—and Burroughs's later fiction is even more profligate of plot than his earlier stories—turn on the hero leading a sort of counterrevolution in each new society he visits. The counterrevolution is aimed at restoring a responsible and aristocratic social order to the place of power it had held before the irresponsible and greedy reformers overthrew it in the name of one ideology or another. The hero either decides to fight against the current false government because of his sense of American justice or he is forced into opposition by the egregious attacks of the foolish dictators he meets. Burroughs's hero Carson Napier is always a counterrevolutionary, struggling against a corrupt ideological system, and he always restores to power a virtuous representative of the previous legitimate oligarchy.

Obvious attacks on totalitarian ideologies fill the series. In the first book, *Pirates of Venus*, a group of uglies called the Thorists are the villains. They are primitive communists who serve as a convenient vehicle through whom Burroughs can share his staunchly conservative antipathies, but they are so obviously villainous that they are even less interesting than the new varieties of that favorite Burroughs creation, the giant spider, which dangle from every branch of the enormous trees in the Amtorian forest. In the third story, *Carson of Venus*, the other end of the political spectrum, the Nazis, is parodied in a gang of clumsy totalitarians named "Zanis." The Thorists and the Zanis show Burroughs's healthy dislike of ideologies which exaggerate the inevitable restrictions civilization places on freedom in the name of a specious common good, but they make dull villains. The second book, *Lost on Venus*, is more interesting because Burroughs for the first time faces the issue of a society which honestly and intelligently attempts perfection. This is the city of Havatoo.

Burroughs tries hard to imagine Havatoo as a deliberately planned, highly technological, civilized utopia. The city is a technocracy, with merit the only source of preferment, and good behavior the only measure of virtue. It is ruled by a council of scientists who are selected on merit. The major concern of its citizens seems to be proper breeding, because Havatoo is a society of eugenicists, seeking to breed out of humanity the savagery, violence, selfishness, and passion which Burroughs's fiction had always depended on. Like many other utopias, Havatoo is presented as a reasonable, placid society, but at the same time Burroughs makes it clear that the society represents the public values of civilization he had invented Tarzan to avoid. The appeal of Havatoo, which is an island of security and peace on a planet of constant battle and danger, creates a new problem for Carson Napier, Burroughs's indecisive hero. Carson must

do more than simply avoid capture or plan an escape; he must evaluate a complex social ideal and decide whether to remain in Havatoo or to continue his quest for the savage kingdom of his Amtorian princess, Duare.

Of course, in a heroic romance there is no real choice: Carson has to continue the quest for his princess. There are professional objections to utopia: once the innocence of Eden (Tarzan's youth, as presented in *Jungle Tales of Tarzan*) is reestablished in the New Jerusalem (Havatoo), history—and profitable fictional adventure—ends. But the plot explanation simply provides a device Burroughs uses to avoid admitting the appeal of his own utopian invention. Burroughs had for decades built strong eugenicist views into his stories; then in Havatoo he creates a society of thoroughgoing eugenicists, only to discover that he didn't like it, for the deliberate equality of utopia denied the freedom from social responsibility which powered all his fantasies. In order to exorcise the positive utopian appeal he had accidentally created in Havatoo, Burroughs falls back on an ancient resource of suspicious conservatives confronted by a presumed utopia, and he has his hero discover that the ideals of Havatoo are only a pious cover for its repression of the adventurous spirit so important to romantic fiction. Though the citizens of the city are content, they are not fully awake, and so not only has Havatoo failed as a utopia, but because of its parochial pride in its system it is also a danger to other societies. Burroughs's Havatoo is the perfection of civilization, a perfectly planned and scientifically operated society which does not realize that it has come to deny the human values it was originally designed to cherish. The society thus fits the definition of dystopia, "a systematic intensification of all the repressive restraints of actual civilization" (Beauchamp 89). The "repressive restraints" of civilization are exactly what the dream of Tarzan allowed 200 million readers to escape.

This analysis may seem a heavy burden to place on pulp fiction. After all, Burroughs wrote only to entertain and to sell stories. Of his intellectual processes, he declared, "I like long silences in my own thoughts" (McWhorter 9). He was always puzzled and mildly resentful about any claims for "ideas" or "meanings" which his stories might reveal, because he always claimed to write stories "which I feel would entertain me and give me mental relaxation" ("Edgar Rice Burroughs"). Yet without fully intending to, he tackled many of the issues that during the same years occupied such writers as Edward Bellamy, Austin Wright, H. G. Wells, and Samuel Butler. Burroughs wrote stories about the value of an individual in relation to society, the value of progress, the problems and possibilities of advanced technologies, humans' relation to their environment, the proper role of religion, sexual and class politics, and a hundred other typically utopian concerns. In each fictional case, what could have been the glorious beginning of a progressive new order proves instead a degenerate dead end, and utopia is clearly not worth its apocalyptic cost. It is a belief which Ernest Callenbach's *Ecotopia* and Marge Piercy's *Woman on the Edge of Time* deny, but conservative utopias like Larry Niven and Jerry Pour-

nelle's *Oath of Fealty* accept, and a debate which continues in almost all science fiction stories that create alternative visions for human futures. For example, a recent work like William Gibson's very successful *Neuromancer* opens the old debate anew.

Burroughs's apocalyptic pessimism in his most imaginative years suggests that apocalypse and utopia are necessary psychological complements in our national fantasies—something which liberal utopians often forget. The apocalypse is necessary to destroy the power of the old faulted civilization, and while the hope of utopia is necessary to justify the horror of the apocalpyse, the promise ought not to be believed, because real progress—which involves change and danger—is impossible. Cain, the founder of cities, is still cursed, and only the dream of a return to the Garden can endure. Burroughs's metahistory is entirely in the conservative spirit, an original demotic Spengler and Toynbee packaged for clerks and railroad men, dramatizing the fatalistic view that history is tragic, that any Golden Age cannot last, and that while all civilizations have grandeur, and perhaps some even a glory that can outlast them, we can see in their ruins the vanity of human wishes. Contemplation of the great drama of tragic history had served to evoke pity and awe in generations of conservative romantics before Burroughs, and he agreed with their gloomy prognosis for civilization, despite his recurrent desire for some way out of the inevitable tragic decline. He could never succeed in transcending metahistorical fatalism by a renewal of belief in the possibility of freedom and justice for all, the belief which is the core of utopian (as opposed to dystopian) vision.

In our time, just as during the decades when Burroughs churned out his combination of Alexander Dumas's derring-do heroics and Charles Dickens's sentimentality, many Americans think improvement—at least utopian improvement—can come only after apocalyptic destruction, so naturally we fear improvement or even discussion of it. We should not underrate the stories of Tarzan, Barsoom, Pellucidar, and Amtor because their author was a real participant in the intellectual problems of his time. His art has entertained generations of readers, but it has also instructed and consoled them by offering a coherent system by which they may understand their world and their fate. A utopian vision which does not recognize and speak to Burroughs's century-old rejection of the modern Western world will stand little chance of popular appeal.

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Gynocentric Mythmaking in Joan Vinge's *The Snow Queen*

DEBORAH BYRD

■ In her 1983 essay "*Canopus* in the Classroom," Lee Cullen Khanna notes that in the past fifteen years a number of women writers of utopian and science fiction novels have presented in their works "an explicitly female vision of the good society": as Khanna observes, such fictional communities usually are characterized by "genuine egalitarianism, fluid political structures, integration of individual and community development, harmony among various forms of life, and, perhaps most significant, respect for process." In her essay Khanna focuses on the articulation of this explicitly female or gynocentric vision in the recent "space fiction" of Doris Lessing; however, her generalizations apply equally to such works as Marge Piercy's *Woman on the Edge of Time*, Joanna Russ's "When It Changed," Ursula K. Le Guin's *The Left Hand of Darkness*, and Joan D. Vinge's *The Snow Queen*. In each of these works, the author suggests that androcentric societies are violent and unjust because they consider men and so-called "masculine" character traits to be superior to women and supposedly "feminine" characteristics. For instance, in androcentric societies rationality and autonomy generally are valued more highly than are intuition and emotion, interdependence and collectivity. Moreover, each of these authors presents as a positive alternative to real and fictional patriarchies an imaginary gynocentric society. As Khanna suggests, these latter societies differ from androcentric ones *not* because they invert the existing hierarchy but because they are non-hierarchical, treating women and men with equal respect and reveling in the complexity and diversity of human beings.

Of these writers—each of whom is making important contributions to feminist thought and to science fiction as a literary genre—Vinge has received the least attention from scholars. An accomplished science fiction writer who has won two Hugos and who is regularly represented in "Best of the Year" science fiction short story anthologies, Vinge draws upon a diverse body of literary and mythic material to present a unique vision of present-day ills and

Extrapolation, Vol. 27, No. 3, © 1986 by The Kent State University Press

possible futures. To date, her most ambitious work is the 1980 Hugo-award winning *The Snow Queen*, a novel somewhat lacking in characterization and dramatic conflict, but which merits serious study for its structural and thematic inventiveness.

As Vinge indicates in the brief preface to *The Snow Queen*, the "seed" from which her novel germinated is a folk tale by Hans Christian Andersen.[3] Also entitled "The Snow Queen," Andersen's story focuses on a young girl, Gerda, who rescues her best friend, Kay, from the clutches of an evil queen who has implanted in the boy's eye a fragment of ice, a fragment that makes Kay view the world from a coldly rational and misanthropic perspective.[4] A pious Christian girl, Gerda breaks the evil queen's spell by singing a hymn to remind Kay that God loves him; her song elicits tears that wash the ice splinter from Kay's eye. But this is not a story about two children's transition from innocence to experience. At the end of the tale memories of their adventure already are fading from Gerda and Kay's minds; in addition, the narrator suggests that even as adults, the two will remain devout, trusting children of God.

In *The Snow Queen* Vinge follows the basic plot of Andersen's tale, recounting the means by which a young girl rescues her best friend from cynicism, unfeeling logic, and an older woman. But more striking than Vinge's debts to Andersen are her departures from and reworking of his tale. Unlike Gerda and Kay, Moon and Sparks do not remain asexual and naive children, nor do they encounter a queen who is totally evil. On the contrary, Vinge's characters are sexually active when they meet their Snow Queen, a woman who teaches them valuable lessons and who arouses their admiration and pity as well as fear, jealousy, and disgust. Conflicting emotions beset Moon and Sparks because their relationship with the Snow Queen is intimate as well as sustained. Feeling betrayed by Moon, Sparks becomes Arienrhod's lover and consort; attempting to regain Sparks's trust and affection, Moon must deal with the fact that she is the cloned daughter of her rival. Finally, unlike Gerda and Kay, Moon and Sparks do not flee their powerful antagonist or repress the knowledge of evil they have gained. As Arienrhod's successor, Moon presides over the ritual in which her mother is killed, and having chosen Sparks as her consort, she announces to her subjects that the two intend to reform the society they will rule.

In rejecting the Christian didacticism of her source, Vinge also departs thematically from Andersen. His story does contain elements revealing the pagan roots of his folk tale; in parts 3 and 4, for example, Gerda is characterized as a child of nature whose ability to communicate with plants and animals is central to the success of her quest. Yet Andersen's tale ultimately does not celebrate courage, intelligence, and instinctual oneness with the natural world. Instead, his story presents as ideal a life of stasis, insularity, and humble devotion to God that would preclude the need to develop or utilize such character traits. By contrast, one of the central themes of Vinge's novel is the value of

curiosity, intuitive knowledge, and receptivity to nature's wisdom. Rejecting a Christian framework because Christianity is rooted in and helps to sustain patriarchy, Vinge plants the seed that Andersen had given her in the "rich Earth" of Robert Graves's *The White Goddess* (*SQ*, [i]). What results is a novel about the conflict between two futuristic worlds: the androcentric Hegemony, an imperialistic and highly technological galactic empire, and the gynocentric planet Tiamat, where those inhabitants who have not succumbed to the influence of the Hegemonic "offworlders" worship a mother goddess and rely upon the wisdom and healing powers of witch-like sibyls.

In *The Snow Queen*, Vinge makes thematic and structural use of myths of the mother goddess and accounts of witchcraft cults to emphasize that the philosophy of life indigenous of Tiamat is fundamentally gynocentric. Moreover, by concluding the novel in the way she does, Vinge leaves no doubt that the gynocentric values of Tiamat are morally superior to the androcentric values of the Hegemony; for the departure of the offworlders, the demise of Arienrhod, and the designation of Moon as the new queen of Tiamat are all presented in a positive light.

In almost all respects, the world view of the Tiamatans—or more accurately, of those Tiamatans who continue to endorse the ethical code of the planet's enlightened founders—differs radically from the philosophy of life held by the citizens of the Hegemony. First Vinge's Tiamatans believe human beings should strive to live in harmony with their environment and with other life forms, whereas the peoples of the Hegemony exploit humans, animals, and the land in order to gain wealth and power. Second, the Tiamatans share information with all members of the community; by contrast, the elite of the rigidly hierarchical Hegemony hoard their technological and scientific knowledge in order to oppress societies and individuals less "advanced" and less prosperous than they are. Third, the Tiamatans not only value reason but also cherish the knowledge that comes from intuition and from visionary states, whereas the citizens of the Hegemony accept as valid only logical reasoning, characterizing the utterances of the Tiamatan sibyls as "nothing more than a combination of superstitious fakery and disease-born madness" (*SQ*, p. 51). Fourth, Tiamatans view the world as based on the creative interaction of such dualities as light and dark, good and evil, and male and female. Conversely, the citizens of the Hegemony believe that one set of polarities is superior to its complements. Finally, the Tiamatans contentedly participate in nature's cycle of birth, growth, and decay; they view change as natural and positive, not as fearsome. The primary goals of the Hegemony, on the other hand, are maintaining the stability of their rigidly stratified society and avoiding old age and death by drinking the life-sustaining blood of Tiamatan sea creatures called mers.

At the beginning of *The Snow Queen*, one learns that the values and world view indigenous to Tiamat currently are endorsed only by the Summers.

Tiamatans who have had little or no contact with the offworlders, the Summers inherited their philosophy of life from wise and selfless scientists of a highly advanced but decaying empire of the distant past. These scientists had hidden in a cave on Tiamat a huge computer containing all of the Old Empire's knowledge, and they had created through genetic manipulation the mers, intelligent beings who guard and maintain the computer. These scientists also had restructured the brain tissue of a few Tiamatans, giving people known as sibyls the ability to project themselves into the computer's circuitry (*SQ*, p. 208). This ability to communicate directly with the secret data source is transmitted genetically; however, the modern-day sibyls are unaware that they are receiving computerized information. Instead, they believe that a Mother Goddess induces trances and speaks through them (*SQ*, p. 208).

Although we learn little about this Old Empire except that it had been highly advanced technologically, Vinge indicates through allusions to mother goddesses, witches, and sibyls that the values the Old Empire had brought to Tiamat are essentially those of a gynocentric rather than an androcentric culture. For instance, the society which has arisen on Tiamat is matriarchal, rule alternating between a Snow Queen and a Summer Queen. Periodically the Tiamatans sacrifice to "The Lady of the Sea" both the ruling queen and her less powerful male consort, giving their allegiance to a new pair of rulers in a ritual that reminds all members of the culture that stasis is stultifying, change regenerative.[4]

Place names also reveal that Tiamat's culture is woman-centered, for the planet is named after a female figure who appears in the *Enûma elish*, the Babylonian genesis. In this ancient creation myth Tiamat personifies the deep, the great mother from whose formless saline body the universe was created.[5] Similarly, in Egyptian mythology Tiamat is characterized as a great female fish who periodically swallows the universe, including all existing gods, so that she can give birth to a new world and pantheon.[6] In addition, Vinge's female hero comes from a Tiamatan island called Neith. In Libyan mythology Neith is a manifestaiton of the mother goddess, and in Egyptian mythology Neith is characterized not only as the primal world body, but also as a divine sorceress whose special task is to protect women.[7]

Vinge also indicates that the culture of Tiamat is a gynocentric one through the name, behavior, and values of her hero, Moon Dawntreader Summer. Lunar deities almost always are associated with the notion of becoming, with the idea that life rhythmically repeats and periodically renews itself. As M. Esther Harding notes, "the worship of the moon is the worship of the creative and fecund powers of nature and of the wisdom that lies inherent in instinct and in at-oneness with natural law."[8] And because the moon exerts an influence on the tides, lunar deities are often rulers of the sea—the sea, like the moon, being a symbol of the natural and desirable nature of process and change. Moreover,

in almost all cultures lunar deities are female, and cultures and cults who worship such deities generally hold a gynocentric world view, even when they do not advocate matriarchy or believe women are superior to men.[9]

Moon's name thus calls to mind societies that value what they consider distinctively female kinds of wisdom, power, and creativity. Similarly, Vinge's Tiamatan sibyls, persecuted individuals who alone have access to the computerized information essential to their planet's survival, remind us of the female seers and witches whose knowledge and skills have been devalued, suppressed, or appropriated by men or male-dominated cultures. Like the members of witchcraft cults of the past and present, the sibyls seek to heal rather than to cause wounds. Moreover, they do not attempt to hoard or sell their knowledge but share it with all, just as the witches of medieval and so-called "Renaissance" Europe had done until they were replaced by a primarily male medical profession that turned healing into a commodity.[10]

As a "lunar" being, Moon communes with Blodwed's pent-up animals and swims in rhythmic harmony with the mers; as a sibyl, she heals the psyches as well as the bodies of many she encounters. Gynocentric, too, is Moon's "respect for process" (Khanna, p. 9). For although Moon realizes that change can be difficult and painful, she nevertheless argues that "Change isn't evil—change is life. Nothing's all good, or all bad. Not even Carbuncle [the capital city of Tiamat]. It's like the sea, it has its tides, they ebb and flow" (*SQ*, p. 489). And as she unmasks after having been made the new Summer Queen, she proclaims to her subjects: "The life that was is dead—let it be cast away, like a battered mask, an outgrown shell. Rejoice now, and make a new beginning!" (*SQ*, p. 518).

Having come to believe that "Nothing's all good, or all bad," that one should seek a creative and productive balance between conflicting forces and desires rather than try to eliminate all tension and discord, Moon hopes that she and her subjects can learn to integrate some of the technological and political goals of her immediate predecessor into a philosophy of life that comes from her planet's distant past. She is confident that the gynocentric world view indigenous to Tiamat is humane and ethical; however, she also knows that Tiamatans could benefit greatly from science and technology. Thus she is convinced that her subjects must resist the temptation to fall back into a "primitive, unquestioning unity with the sea" (*SQ*, p. 484). It is because she recognizes the importance of both rational and intuitive knowledge, of both sensitivity to natural beauty and a scientific understanding of natural processes, that Moon chooses Sparks as her consort. For unlike Moon, Sparks always has been fascinated by and has understood the transformative powers of science and technology. Desiring to make use of both ancient and modern wisdom, Moon also urges her subjects to send to her all other sibyls, for on her travels offworld she had discovered that these persons had been created "to help . . . worlds relearn" the wisdom of an empire that had been as beneficent as it was scientifically ad-

vanced (*SQ*, p. 488). With the help of other sibyls, Moon hopes to ensure that the Tiamatans will learn to use scientific knowledge and technological gadgets to improve the lives of all rather than to enhance and protect the wealth and power of a few.

By having Moon come from the half of Tiamat known as Summer and thereby characterizing her as a vegetation goddess, Vinge implies that as a ruler Moon will indeed rejuvenate and constructively transform her society. But the utopian society that Moon envisions is not depicted. Instead, Vinge directs attention to the evils and the corrupting influence of the Hegemony, probably because the androcentric values and behavior of the Hegemony so closely resemble those of today's world powers. The Hegemony's original goal had been to rebuild the Old Empire on a microcosmic scale, but never achieving anything close to the technological sophistication of the Old Empire, the Hegemony has had to settle for economically dominating politically autonomous planets. The Hegemony maintains its power over Tiamat by refusing to share any of its technological know-how with the Tiamatans and by exiling all sibyls from the Winter capital. As Jerusha, the Hegemonic police commander on Tiamat, explains:

> There were no sibyls in the city—by Hegemonic law. . . . [For] Sibyls were the carriers of the Old Empire's lost wisdom, meant to give the new civilizations that built on its ruins a key to unlock its buried secrets. And if there was anything the Hegemony's wealthy and powerful didn't want, it was to see this world stand on its own feet and grow strong enough to deny them the water of life. (*SQ*, pp. 51–52)

As Moon discovers on her trip offworld, exploitation, selfishness, and cruelty are particularly rampant in the Hegemony's center of power, the planet Kharemough. Extremely polluted and overpopulated, Kharemough is controlled by a few individuals who preside over and profit economically from a rigidly hierarchical society. As a horrified Moon reports,

> A strict caste system controlled the people of this world, defining their roles in society from the day they were born. . . . There were separate shops, restaurants, and theaters for the Technical, Nontechnical, and Unclassified ratings, and the highest and lowest could not even speak to each other without an intermediary. (*SQ*, pp. 193–94)

Moon becomes more aware of the debilitating effect of such stratification when she meets BZ, a sensitive young Kharemoughi who becomes an officer of the Hegemonic police force because his society gives him no other way to preserve his family honor. Proud of his aristocratic family and his planet, BZ feels he must kill himself when he fails to accomplish a police mission and becomes the captive and "pet" of a Tiamatan robber band. Prevented from committing suicide, he despises himself even more; when he meets a fellow Kharemoughi after his escape, he exclaims, "I never deserved the honor of your respect, or even your presence. But I deserve your scorn and your execration

fully. I am no better than a slave, a crawling animal" (*SQ*, p. 362). Yet by the end of the novel, after having been nurtured and instructed by Moon and Jerusha, BZ has begun to adopt a view of himself and of the world that is at odds with the Kharemoughi ethos. He decides to remain on the Hegemonic police force, but he now realizes that human beings and human laws are no more perfect than he is (*SQ*, p. 532).

Kharemough is the hub of an imperialistic empire in which individuals make fortunes not only by confiscating other planets' resources but also by kidnapping foreigners and selling them as cheap labor or as lobotomized sexual slaves. Misogyny also flourishes in the Empire. For instance, the hard-working and conscientious Jerusha is repeatedly humiliated and derided by her male superiors. They ultimately commend her for her performance as Tiamatan police commander but then give her a routine, dead-end assignment, telling her, "The only reason you were made an inspector in the first place was merely to humor her [the Snow Queen]. This new position is more than you deserve. You know . . . that the men under your command here never accepted taking orders from a woman" (*SQ*, p. 473).

Jerusha's superiors and most other men of authority in the Hegemony believe Kharemough has developed "a highly scientific structuring of society, perfectly suited to our technological orientation" (*SQ*, p. 204). Others, however, regard Kharemough in a different and more negative light. Jerusha, who eventually gives her allegiance to Tiamat, finds the Kharemoughi lifestyle "soulless" (*SQ*, p. 275); Herne calls his birthplace a sewer (*SQ*, p. 132); Elsevier claims that Kharemough is as socially and morally backwards as it is technologically advanced (*SQ*, p. 204); and Moon proclaims that the "Kharemoughis don't exist in the real universe" but in a dehumanizing one that they have artificially and perversely created (*SQ*, p. 326).

However, when Vinge's novel opens, Moon knows little of Kharemough, nor does she realize that the Winters of Tiamat have adopted the values of the Hegemony. No longer resembling a beautiful gem or a seashell, the Winter capital, Carbuncle, has become a festering sore (*SQ*, p. 20), a hungry beast that maims or devours most of those who come within its grasp (*SQ*, p. 37). The city offers its residents and visitors "every gradation of degradation" (*SQ*, p. 46); it is filled with "pleasure hells" in which one can gamble, buy drugs, procure a prostitute, or use dream machines in which, as Sparks explains, "you could lock yourself into terrifying experiences on other worlds, commit any crime, experience anything up to the moment of death that you had the courage to endure" (*SQ*, p. 160). Unbeknownst to Moon, the Winters have not just become a "tech-loving" people but have embraced the Hegemony's entire value system. Striving to attain "beauty, wealth, absolute control . . . [and] eternal youth" (*SQ*, p. 28), well-to-do Winters are "privately stockpiling [Hegemonic] technology," hoping to "set up their own little fiefdoms" when the offworlders leave Tiamat (*SQ*, p. 94).

Carbuncle has become a place of "rottenness and corruption" (*SQ*, p. 95) because the Snow Queen is willing to slaughter the mers and to exchange this valuable commodity for the scientific knowledge and technological gadgets of the Hegemony. Before coming to power, Arienrhod had held the gynocentric world view indigenous to her planet.[11] However, shortly after becoming Snow Queen she had succumbed to the Hegemony's view that power and immortality are good in and of themselves, even if a society or an individual must kill and oppress innocent beings to attain these ends.

The extent to which Arienrhod had made the Hegemonic world view her own is exemplified particularly well in chapters 26 and 42. In the earlier chapter, Arienrhod tells Sparks, who for some time has been her lover and consort, that to ensure she and her values will prevail in Tiamat after the departure of the offworlders, she plans to kill a great number of the Summers, most of whom have demonstrated no interest whatsoever in Hegemonic technology. When Sparks, son of a female Summer and a male offworlder, expresses horror and dismay, Arienrhod remarks scornfully:

> Are you still so bound to those ignorant, superstitious barbarians that you aren't willing to sacrifice a few of them for the future of this world? They [the Summers] play right into the hands of the offworlders; there's a conspiracy between them to oppress us—Winter—the people who want to make this world a free partner in the Hegemony. . . . Do you want them to go on succeeding forever? Isn't it time we had our turn? (*SQ*, p. 250)

As this passage reveals, Arienrhod does not wish to be disassociated from the Hegemony; she simply wants Tiamat to become a powerful force in this empire by beating the Hegemony at its own game.

Arienrhod voices similar sentiments in chapter 42, while trying to convince Moon that national self-sufficiency and power are more important than the welfare of individual Tiamatan citizens. First she explains to her cloned daughter than she had allowed Moon to be brought up as a Summer solely to enable Moon to "understand the Summer mentality, and [know] how to manipulate it" (*SQ*, p. 422). Then Arienrhod tries to persuade her daughter (whom she believes to be a Winter at heart) that slaughtering a large number of the "absurd, tech-hating" Summers (*SQ* p. 423) is justified by Tiamat's need to begin building a technological power base of its own. Although Moon has learned that Tiamat could benefit greatly from the offworlders' technology, she is not convinced by her mother's arguments. Unlike Arienrhod and the Winters, she refuses to endorse the androcentric value system of the Hegemony. "Real power," she tells her mother, is

> Knowing that you can do anything . . . and not doing it only because you can. Thousands of mers have died so that you could keep your power while the offworlders were here; and now thousands of human beings are going to die so that you can

> keep it when they're gone. I'm not worth a thousand lives, a hundred, ten, two—and neither are you. . . . If I have to believe that being what I am means I'd destroy Sparks, and destroy the people who gave me everything, then I should never have been born! But I don't believe it, I don't *feel* it. . . . I'm not what you are, or what you think I am, or what you want me to be. I don't want your power. (*SQ*, pp. 425–26)

"I have my own [power]," she concludes, touching the sibyl's trefoil that hangs from her neck. This talisman marks Moon not only as a person who can empathize and communicate with others, but as an individual who can accept human failings and mortality, and who wants to create a humane and egalitarian society in which all individuals and all forms of wisdom will be valued.

Vinge's *The Snow Queen* is an imaginative, formally sophisticated, and explicitly female envisioning of the flaws of patriarchy and of the values that might prevail in a more just, tolerant, and peaceable human community than presently exists. Yet in some ways *The Snow Queen* is disappointing—it is a good science fiction novel rather than a great one. The whining, weak-willed Sparks is occasionally tiresome; he seems totally devoid of self-esteem and hopelessly subject to manipulation once he believes Moon is dead. And the "goody-two-shoes" Moon is sometimes boring; she overcomes all obstacles with relative ease, commits no grave errors for which she alone is responsible, and rarely seems to experience depression, anxiety or outrage. Equally unsatisfying is the characterization of Arienrhod. In the concluding chapters of the novel the Snow Queen is depicted as a tragic figure, but too little information about her thoughts, feelings, and history has been presented to arouse feelings of pity, terror or empathy. Also disappointing is the meeting of Arienrhod and Moon, the climactic incident for which Vinge prepares us for forty-one chapters but to which she devotes a scant eight pages. In this scene, the emotional stress experienced by mother and daughter is asserted by the narrator rather than demonstrated by the characters as the two women unsuccessfully seek to convert each other to their respective—and extremely different—philosophies of life.

By giving her three central characters symbolic names, Vinge clearly invites readers to view them as emblems of and spokespersons for specific philosophical and moral positions. They are what Rachel Blau DuPlessis terms "cluster characters," relatively flat characters who represent predetermined sets of traits and values and who function as Socratic questions in a text that is meant to instruct as well as entertain.[12] But when Vinge places Moon, Arienrhod, and Sparks in a narrative that contains such realistically drawn, well-rounded characters as BZ and Jerusha, she also tempts us to view the three as distinct individuals rather than as representative types or symbolic constructs. In the end, however, the mythic and symbolic rather than the realistic mode predominates in *The Snow Queen*. Vinge essentially writes what DuPlessis calls a feminist apologue: an imaginative yet explicitly didactic work designed to

make readers living in patriarchal societies desire "real cultural change" (DuPlessis, p. 7). The intention is laudable, the vision of present-day ills and possible futures both instructive and delightful, even if Vinge's novel, like her imaginary "good society," is not quite perfect.

Notes

1. Lee Cullen Khanna, "*Canopus* in the Classroom," *Doris Lessing Newsletters*, 7 (1983), 9. For another analysis of the distinct characteristics of recent science fiction by women see Catherine Podojil, "Sisters, Daughters, and Aliens," in Dick Riley, ed., *Critical Encounters: Writers and Themes in Science Fiction* (New York: Ungar, 1978), pp. 70–86.
2. Joan D. Vinge, *The Snow Queen* (New York: Dell, 1980), preface. Hereafter all quotations from *The Snow Queen* will be cited parenthetically and abbreviated *SQ*.
3. Hans Christian Andersen, "The Snow Queen," in *Danish Fairy Legends and Tales*, trans. Caroline Peachey (London: George Bell and Sons, 1907).
4. Vinge has acknowledged that her main source of information about matriarchal cultures and about mother goddess figures such as "The Lady of the Sea" was Robert Graves's *The White Goddess: A Historical Grammar of Poetic Myth* (New York: Farrar, Straus, and Giroux, 1966). Information on these topics also can be found in Erich Neumann, *The Great Mother: An Analysis of the Archetype*, trans. Ralph Manheim, Bollingen series, no. 47 (1955; rpt. New York: Bollingen Foundation, 1963); Jane Ellen Harrison, *Prolegomena to the Study of Greek Religion* (1903; rpt. Cambridge: Cambridge Univ. Press, 1908; and Diane Wolkstein and Samuel Noah Kramer, *Inanna, Queen of Heaven and Earth: Her Stories and Hymns from Sumer* (New York: Harper and Row, 1983).
5. Alexander Heidel, *The Babylonian Genesis: The Story of the Creation* (1942; rpt. Chicago: Univ. of Chicago Press, 1951) and Helmer Ringgren, *Religions of the Ancient Near East*, trans. John Sturdy (1967; rpt. Philadelphia: T. Westminster Press, 1973), pp. 69–70.
6. Barbara G. Walker, *The Woman's Encyclopedia of Myths and Secrets* (New York: Harper and Row, 1983), p. 998.
7. Veronica Ions, *Egyptian Mythology* (1965; rpt. London: Paul Hamlyn, 1973), pp. 103–04, and Mary Daly, *Gyn/Ecology: The Metaethics of Radical Feminism* (Boston: Beacon Press, 1978), pp. 75–76.
8. M. Esther Harding, *Woman's Mysteries, Ancient and Modern: A Psychological Interpretation of the Feminine Principle as Portrayed in Myth, Story, and Dreams* (1971; rpt. New York: Bantam Books, 1973), p. 34. For additional information about lunar deities see Mircea Eliade, *Patterns in Comparative Religion*, trans. Rosemary Sheed (Cleveland: Meridian Books, 1958), pp. 754–80, and Marta Weigle, *Spiders and Spinsters: Women and Mythology* (Albequerque: Univ. of New Mexico Press, 1982).
9. The beliefs and world view endorsed by witches of the past and present are analyzed in Margot Adler, *Drawing Down the Moon: Witches, Druids, Goddess-Worshipers, and Other Pagans in America Today* (Boston: Beacon Press, 1979); Daniel Cohen, *The New Believers: Young Religion in America* (New York: M. Evans, 1975); Erica Jong, *Witches* (New York: New American Library, 1981); and Walker, pp. 1089–90.
10. The connections between the fifteenth-, sixteenth-, and seventeenth-century persecution of witches, many of whom were midwives and healers, and the rise of a male-dominated medical profession are discussed in Daly's *Gyn/Ecology* and in two works by Barbara Ehrenreich and Deirdre English: *Witches, Midwives, and Nurses: A History of Women Healers* (Old Westbury, N.Y.: The Feminist Press, 1973), and *For Her Own Good: 150 Years of the Experts' Advice to Women* (New York: Doubleday, 1978), ch. 2. See also Joan Kelly-Gadol, "Did Women Have a Renaissance?" in *Becoming Visible*, ed. R. Bridenthal and C. Koonz (Boston: Houghton Mifflin, 1976), pp. 138–64.

11. Like Tiamat and Neith, Arienrhod is one of the manifestations of the mother goddess, in this case in Welsh mythology. Accounts of the character and behavior of Arienrhod can be found in Graves, pp. 97–103, Walker, p. 56, and *The Mabinogi and Other Medieval Welsh Tales*, trans. Patrick K. Ford (Berkeley: Univ. of California Press, 1977).
12. Rachel Blau DuPlessis, "The Feminist Apologues of Lessing, Piercy, and Russ," *Frontiers*, 4 (1979), 2.

Mathematical Themes in Science Fiction

LILA M. HARPER

■ Looking at science fiction studies mathematically, we may notice that for every critic or writer concerned there is a correspondingly different set of definitions about what constitutes science fiction. Many attempt to restrict the genre, but no one really succeeds. Science fiction abounds with borderline cases. Yet a book can conform to all the more widely accepted external attributes of science fiction and still leave science fiction adherents cold (as is the case of Doris Lessing's *Shikasta* [1976], with aliens and reinterpretations of earth's history, but no really new ideas or insights).

If I must propose a definition of science fiction, I suggest that it tends to be a piece of fiction which uses ideas, concepts, and gadgets from areas of study outside the general field of the humanities. In its best examples, science fiction is interdisciplinary in nature. It allows us to play with concepts developed in the sciences and mathematics, to explore other possible realities, and to speculate and wonder. Often, mathematical themes occur in science fiction and other speculative-type fiction. In fact, many topics from abstract mathematics have been explored in science fiction form from science fiction's earliest days.

Defining mathematics itself poses other, less well known problems. As Paul R. Halmos points out in his article, "Mathematics as a Creative Art," most people believe they know what mathematics is, but tend to confuse mathematics with numbers. The really mind-stretching topics embedded in the symbols of topology, set theory, probability, abstract algebra, analysis, non-Euclidean geometry, and logic remain unknown to non-mathematicians. Halmos reveals, "It saddens me that educated people don't even know that my subject exists. There is something that they call mathematics, but they neither know how the professionals use that word, nor can they conceive why anybody should do it" (375).

Halmos perceives mathematics as divided into two subjects which he calls "mathology" and "mathophysics" (375). Mathology is generally called pure

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mathematics, and mathophysics is the more universally known applied mathematics (375). The more common mathematical themes in science fiction would seem to come from the mathophysics areas of study, since science fiction is seen as developing from stories about marvelous inventions and futuristic technology. But this is not the case. Science fiction's use of mathematics reflects what Kingsley Amis calls the "strong puzzle interest that is widespread in science fiction" (141). (I suspect that many a recent science fiction story was inspired by Martin Gardner's regular monthly column on recreational mathematics which appeared in *Scientific American* from 1957 to 1981). As such, most of the mathematical themes are concerned with the more easily visualized or conceptualized aspects of mathology than with the more abstract and non-engineering topic areas of mathematics; these themes can be traced back to the very early pulp stories.

These mathematical themes have little to do with numbers or with arithmetic as we generally use it.[1] A mathematician would be as likely to add a column of numbers as a literary scholar would be to diagram sentences. In fact, most mathematicians have a rather low opinion of problems which involve much number calculation. When Stanislaw Ulam was working on the atomic bomb at Los Alamos, he admitted to a friend that he had "sunk so low" from his work in topology as to be actually working with numbers with decimal points (quoted in Gardner *Order* 300).

Mathematics is both of this world and not of this world. On one hand, it is a creative subject, developed over thousands of years, playing with relationships of completely abstract ideas with no connection to the physical world. Yet, as implied in the title of a paper by Eugene Wigner: "The Unreasonable Effectiveness of Mathematics in the Natural Sciences," we can use it to make predictions about the world we live in Ulam writes, "The miracle is, that science would not be possible, physics would not be conceivable if there was not this similarity or identity of vast numbers of points of subsets or group of points in this universe" (quoted in Gardner *Order* 300).

This peculiar place of mathematics in our world underlines its use in science fiction. If the mathematics work, but the description does not match anything in the physical world about us, then perhaps somewhere, somehow, there is a physical reality which mirrors the concepts the mathematicians manipulate. (For those interested in reading some mathematically oriented science fiction, the best sources are Clifton Fadiman's two anthologies: *Fantasia Mathematica* [1958] and *The Mathematical Magpie* [1962, rev. 1981]. These anthologies cover material written before 1962.)

Flatlands

Flatland stories attempt to describe a society which exists in two-dimensional space. The earliest and best known is Edwin A. Abbott's novelette, *Flatland: A*

Romance of Many Dimensions (1884), which was first published under the pseudonym A. Square. Jane Hipolito and Roscoe Lee Browne describe this book as "a witty, highly personal flight of Victorian fancy, after the manner of Lewis Carroll; a startling modern statement of scientific and social questions which engross our own 'liberated' age; an intimate and appealing expression of everyman's quest for self; and a call to expand our awareness of a universe . . ." (792). This story indirectly helps in the understanding of higher dimensions by examining problems two-dimensional creatures would have in understanding three dimensions.

Flatland was written when mathematicians were greatly interested in n-dimensional geometry, while the public was completely unaware of such theories (Hoffman ii). In Flatland society, everyone is a flat geometric shape possessing one eye (see Fig. 1). The more angles one has, the higher one's social position, with the circles occupying the highest level. Each generation gains one more side than the previous generation. The son of a triangle will be a square; the son of a square will be a pentagon. The lowest position in this society is occupied by the women who are merely straight lines with an eye at one end.

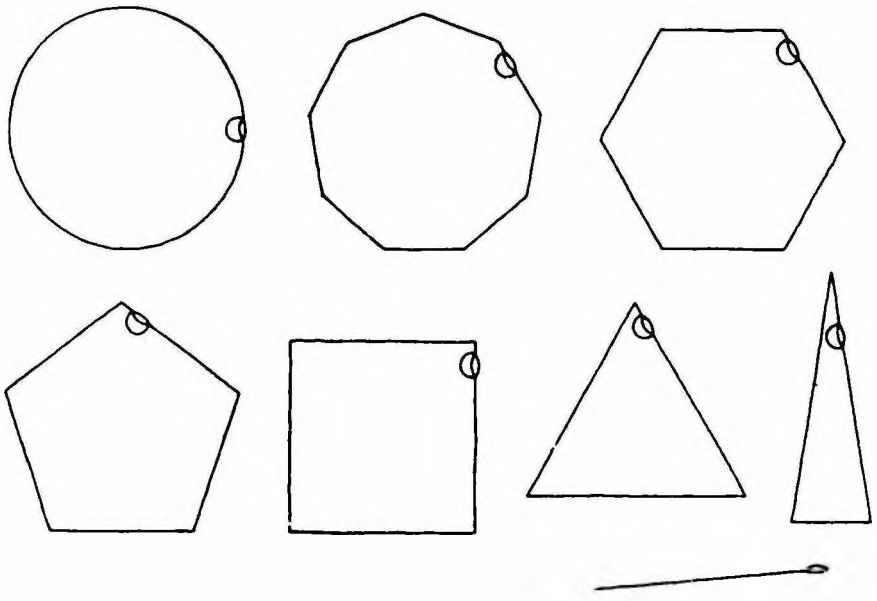

Fig. 1

Since Flatlanders can only see one side at a time, the women are particularly dangerous. If they turn around, presenting their backs, they become, in the viewpoint of Flatlanders, invisible; and if annoyed, they can use their bodies to stab a male. To protect themselves, the males keep the women in narrow long rooms where they cannot turn around.

The narrator of *Flatland* is a Square who visits a one-dimensional world, Lineland, in a dream. There, he fails to convince Linelanders of the existence of two-dimensional space. Then he himself is exposed to a higher space when a Sphere visits him and lifts him above Flatland. The Square also fails to convince other Flatlanders of the existence of three-space and he is subsequently jailed.

The prejudices and bias in Abbott's *Flatland* have been interpreted differently. Some (such as Peter Nicholls et al. in their book, *The Science Fiction Encyclopedia*) have taken the attitudes toward women and class distinction at face value and have concluded that Abbott himself held such biases, and that *Flatland* reflects the generally held beliefs of his time and social class (he was headmaster of the City of London School). Others (including Martin Gardner) have compared *Flatland* to Swift's *Gulliver's Travels* and see the story as a caricature of human customs and institutions.

Hipolito and Browne compare the Square to Lewis Carroll's Alice. Like Alice, the Square goes beyond ordinary thinking and explores lands where mathematical abstractions have a physical reality. Abbott's mathematical metaphors are more obvious than Carroll's, whose references often need annotations to be fully understood (793).

Abbott, who was a literary scholar (author of *Shakespearean Grammar* [186?]) with interests in the classics and theology, uses literary allusions to enlarge the satiric dimensions of his work (Hipolito and Browne 793). Hipolito and Browne point out that Abbott divides *Flatland* into two parts: "This World" and "Other Worlds," and each part has a Shakespearean epigraph. The first is, "Be patient, for the world is broad and wide"—Friar Laurence's advice in *Romeo and Juliet* (793). According to Hipolito and Browne, Abbott took the concept of a society trapped in two-dimensional thinking from *Romeo and Juliet*, in which sexual and social roles are rigidly institutionalized (793).

Flatland's second epigraph, "O brave new worlds, that have such people in them!" shows the relationship between Miranda (*The Tempest*) and the Square, who are both innocents of the outer world (794). Although the Square gains wisdom, he learns that he is still powerless to change the world. By the end of the book, he expresses the more modern note of "alienation, powerlessness, and futility" (794).

Charles Howard Hinton also wrote about a two-space society in his 181-page novel, *An Episode of Flatland: Or How a Plane Folk Discovered the Third Dimension* (1907). It appears to be based on a short essay entitled, "A Plane World," which he published in his first series of *Scientific Romances* (1904). The novel itself is a poorly written socialist fantasy, but Hinton's development of his two-space world is fascinating. While Peter Nicholls describes Hinton as "a pseudo-scientist who used the idea to explain ghosts and imagined a four-dimensional God from whom nothing in the human world could be hidden" (*S. F. Ency.* 229), Martin Gardner takes Hinton's Flatland much more seriously.

According to Gardner in *The Unexpected Hanging*, Hinton's father was a surgeon, author of *The Mystery of Pain*, and a friend of George Eliot's. Charles went to Oxford where he studied mathematics. He married Mary Boole (daughter of George Boole, the logician) and taught mathematics at Princeton and the University of Minnesota (138). Hinton built models of four-space structures as they would be seen in three-space and tried to visualize four dimensions. Finally, he became convinced that he could think in four dimensions and described his methods in his books, *The Fourth Dimension* (1904) and *A New Era of Thought* (1888). He taught his methods to his sister-in-law, Alicia Boole, and she later made significant discoveries in this field (138).

While Abbott's Flatland was a plane on which the shapes moved about (in some unexplained manner), Hinton's Flatland, which he called Astria, was the rim of a circle (see Fig. 2). His Flatlanders walk about on the rim of a disk which rotates about a flat sun. While Martin Gardner states that the Astrians, like Abbott's Flatlanders, have only one eye (*The Unexpected Hanging* 140), close examination of Hinton's diagrams in his essay and book shows that his little triangles possess two eyes (see Figs. 3 and 4). Also, unlike Abbott's geometric shapes, Hinton's Astrians have legs and arms.

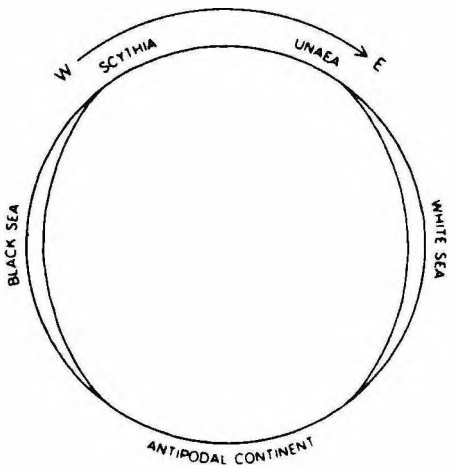

Fig. 2

When one Astrian wishes to pass another, he must go over or under the other (see Figs. 5 and 6). This problem caused great difficulties in the history of this world. The Unaeans in the East were once invaded by the Scythians in the West. The Scythians could attack the Unaeans from behind, giving them a great advantage in battle; in two dimensions, it is difficult to dodge an attack. The Unaeans were able to fight back when they realized the planet was round. They marched around the world, and after many generations, reached Scythia. They had to cut down every tree they came to, but they finally had the advantage of

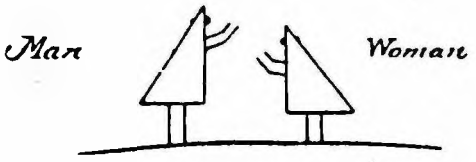

Fig. 3

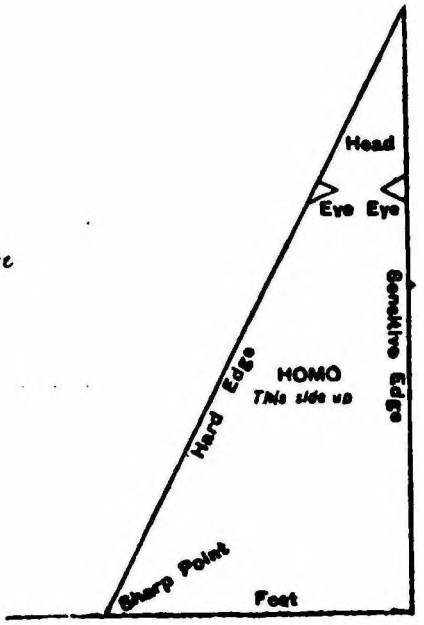

Fig. 4

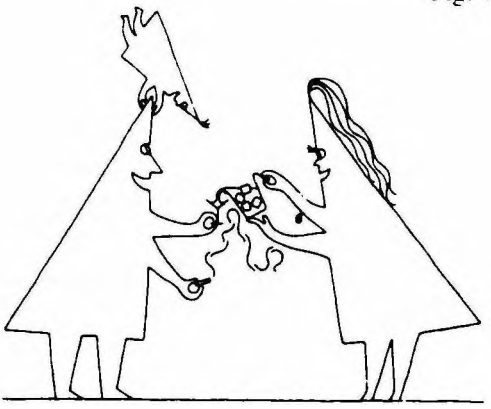

Fig. 5

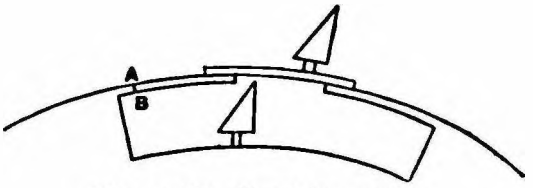

Diagram IV.—Two beings passing.

Fig. 6

striking the Scythians from behind. Male Astrians face east, while the females face west. Thus, the women of Unaea would be in an excellent position to fight the attacking Scythians. Hinton acknowledges this possibility, but declares that such a practice would be unthinkable in Astrian society.

There is a striking difference between the Flatland women of Hinton's and Abbott's worlds. In Abbott's world, the women occupy the lowest position in society, are uneducated, and are considered incapable of logical reasoning. In Hinton's world, the inhabitants (who are symbolized by right triangles with feet) have a sharp point on one side and a sensitive edge on the other where the face is located. So two males or two females cannot approach one another unless one stands on his or her head. However, a male and a female not only can communicate easily with each other, but if aligned correctly, can protect each other's sensitive edge. Because of these structural pecularities, the female Astrians are highly regarded by the males, are educated, and hold responsible positions in society.

In *An Episode of Flatland*, there is an individual who, like the Square of Abbott's *Flatland*, comes to believe in the existence of three-space. Unlike the poor Square, however, this individual, Hugh Miller, is able to convince his world of the existence of a higher dimension and saves the world when it is threatened by the close approach of another planet.

As a sequel to Abbott's *Flatland*, Dionys Burger wrote *Sphereland: A Fantasy About Curved Spaces and an Expanding Universe* (trans. 1965), which features the Square's grandson (a Hexagon) as the narrator. At first, Burger's book seems an apologetic for *Flatland*'s social inequalities. The grandson tells how the Square's ideas are now honored and mentions other changes which have occurred in society during the past seventy years. Women are now accepted as intelligent and each is required to wear a "shoe" on her posterior to prevent injuries. The class distinctions based on the number of angles one has also has become more flexible. But intolerance for new ideas still exists. Burger also describes other countries in Flatland, Flatland biology, the realization that the world is round, and the discovery of other planets. Then it is discovered that triangles have angles totaling over 180 degrees, showing that Flatland is actually curved, although the two-dimensional creatures cannot directly perceive this curvature. Eventually, the narrator discovers that space is curved and is expanding, but the Hexagon, like his grandfather, is forced to hide his discoveries because of social pressure.

Infinite Regressions and Symmetry

The most common mathematical theme in all literature is that of infinite regression in which the mind is forced to take one step after another backward into a pool of the endlessly repeating. Douglas R. Hofstadter, in *Gödel, Escher, Bach: An Eternal Golden Braid*, gives several examples of this along with

"self-referencing loop" paradoxes. In mainstream literature this often appears as stories within stories, like Chinese boxes or Russian mother dolls.

Infinite regression usually is used to explore creator paradoxes. God may control the movements of man, but perhaps God is not a free agent. In Lord Dunsany's "The South Wind" (1918), the narrator sees the gods in the night sky, but also sees above the gods the hand of still another larger figure. In Jorge Luis Borges's "The Circular Ruins" (1940) a character dreams and gives life to a man, only to realize that "he, too, was an appearance, that someone else was dreaming him" (62).

A way out of this regression would be to join the two ends, making a circle. Thus one could eventually return again to the starting point. Lewis Carroll's *Through the Looking Glass* contains a very small circle in which Alice dreams of the Red King. But as Tweedledee points out, the king is sleeping and is perhaps dreaming of Alice (Gardner *Sixth Book* 223).

When the Rutherford model of the atom, which showed a nucleus in the center with electrons moving about in circular orbits, was developed in 1911, science fiction writers saw the similarity of this model to that of the solar system and imagined a series of worlds-within-worlds for smaller and smaller particles. Raymond Cumming's very popular "The Girl in the Golden Atom" (1919) seems to have initiated a rash of various subuniverses during the 1920s and 1930s.

A famous story of this type is Henry Hasse's "He Who Shrank" (1936), in which an archetypal, egotistical mad scientist injects his assistant (the narrator) with a solution he calls "Shrinx" to continually reduce the narrator's size while providing both heat and oxygen. He is then placed on a block of "Rehyllium-X," a very dense metal, so he can enter subuniverse after subuniverse within the molecules of the Rehyllium-X. By the time this story was written, the general population knew enough about optics to realize that no microscope could ever see an atomic world as presented in Cumming's stories, so Hasse's scientist keeps track of his assistant's progress through a mind-reading device.

The shrinking narrator encounters a variety of different worlds, and through his experiences he gains various telepathic powers. Finally, he arrives on Earth and is disgusted by the inhabitants' stupidity; he is, however, able to communicate with a science fiction writer and tells his story. As the narrator continues shrinking, he wonders if the infinite regression of worlds-within-worlds is circular and that someday he would return home. This leaves the reader suspecting that the narrator did return home and that his home was Earth, but he was unable to recognize it when he saw it because after years of visiting other worlds he had forgotten what his home was like.

The first worlds-within-worlds story, however, predates the Rutherford model of the atom and seems to be motivated more by developments in microbiology than in atomic theory. Fitz-James O'Brien's story, "The Diamond Lens" was published in the January 1858 *Atlantic Monthly*. Here a scientist

consults the spirit of Leeuwenhoek, the father of the microscope, to grind a superior lens. He sees in a drop of water a female creature he calls Animula. The story created such a sensation that the editor of the *Atlantic* felt it would change the direction of American story-writing.

Regression is present in many areas of mathematics. Georg Cantor's transfinite numbers produce the mind-boggling idea of a hierarchy of different infinities. This indicates the presence of cosmic watchers in James Blish's "FYI" (1961). In his story the mere existence of these numbers, which cannot be used to count physical objects in this universe, convinces one character that there must be some kind of over-universe where Cantor's numbers would have physical reality.

Möbius Strips and Other Topological Constructions

A train disappears from the Boston subway system. An algebraist, Roger Tupelo, recognizes the topological aspects of this system. However, the local topologist is trapped on the train (allowing the author to explain any errors his algebraist might commit in explaining the situation). The train appears and reappears, sometimes in several places simultaneously. To avoid collisions, the authorities want to close off the new shuttle, but Tupelo explains why they can't:

> There is a finite probability, as I see it, that the train will eventually pass from the nonspatial part of the network, which it now occupies, back to the spatial part. Since the nonspatial part is wholly inaccessible, there is unfortunately nothing we can do to bring about this transition, or even to predict when or how it will occur. But the possibility of the transition will vanish if the Boylston shuttle is taken out. It is just this section of the track that gives the network its Addssential singlarities. If the singularities are removed, the train can never reappear. (Deutsch "Subway" 231)

The train remains missing until Tupelo accidentally boards it and notices that everyone is reading three-month-old newspapers. The train is stopped, but another train then disappears and the topologist is still missing, suggesting that he may have left the train while in another space.

This story, "A Subway Named Möbius" (1950) by A. J. Deutsch, is based on the properties of the Möbius strip, which can be easily constructed out of a strip of paper (see Fig. 7). Discovered by August Ferdinand Möbius (1790–1868), a student of Gauss, the strip has the peculiar property of having only one side and only one edge. This strange strip belongs to an area of mathematics known as topology.

The Möbius strip, along with the Klein bottle and the tesseract, is a well-known construction in science fiction. Stories involving such topological constructions were very popular in the 1940s and 1950s. The Möbius strip was also used in William Hazlett Upson's "A. Botts and the Möbius Strip" (1945), in which an overly conscientious safety officer is distracted when he attempts to

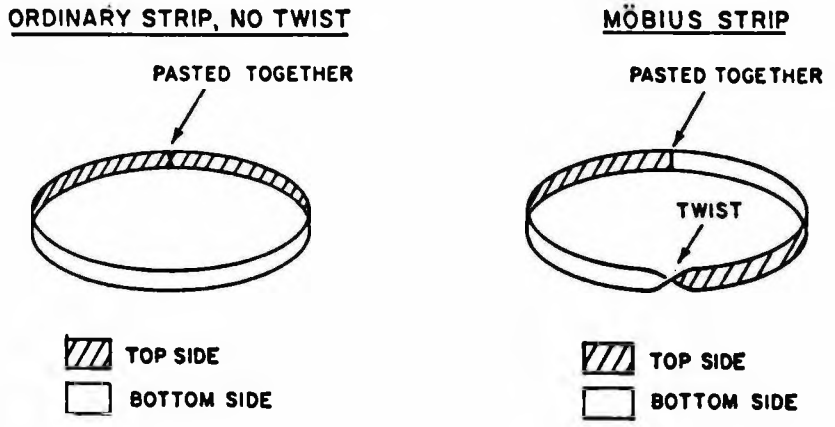

Fig. 7

paint red just one side of a pully's belt which had been made into a Möbius strip. Upson uses the one-sided belt again in his spoof on tall tales, "Paul Bunyan versus the Conveyor Belt" (1949). A half-mile-long conveyor belt with the familiar half-twist is cut in half lengthwise once to get a narrower belt twice as long, then cut lengthwise again to get two narrower belts.

Martin Gardner explains the history of topology and the Möbius strip or unilateral surface in his story "No-Sided Professor" (1946) in order to introduce the idea of a "nonlateral" surface, a surface with no sides. In the story, an academic argument over the existence of such a surface ensues between two topologists; one (Dr. Stanislaw Slapenarski) in a fit of anger, folds the other man up, causing him to disappear into another dimension. Dr. Slapenarski, realizing what he has done, folds himself with the help of a friend so he can rescue the other topologist. When the two manage to unfold themselves, they reappear back into three dimensions. Slapenarski comments that fortunately they unfolded their right hand before their left, otherwise they would have reappeared inside out.

Unlike the very humorous light-hearted stories mentioned above, Arthur C. Clarke's "Wall of Darkness" (1949) presents a dark mysterious wall which surrounds the known world. Upon investigation, it proves to have only one side, and the explorer imagines himself mirrored on the other side of the wall.

The Klein bottle (named for the mathematician Felix Klein) is another one-sided figure which looks like a bottle with its neck stretched, curved, and inserted through the side of its body. It is like a three-dimensional Möbius strip. However, a true Klein bottle would have no hole at the intersection of the neck and the body of the bottle, but would go into the fourth dimension. A Klein bottle has no real inside or outside, but one continuous surface. Because of this, the Klein bottle makes a good trap and is used for that purpose in Bruce Elliott's "The Last Magician" (1951). The evil magician slides down the neck of the

bottle to where it intersects the body so that at "one moment he was all on the outside of bottle, the next, a cross-section of him seemed to be inside it" (221).

Martin Gardner's Dr. Slapenarski is similarly disposed of in "The Island of Five Colors" (1952) just when he is on the verge of explaining how he disproved the four-color theorem. He stands too close to a Klein bottle and is dragged in by some unknown inhabitant of the bottle (a handy deus ex machina).

In Theodore Sturgeon's "What Dead Men Tell" (1949), a structure similar to a Klein bottle is used as an entrance test for admittance into an organization of immortals. A man finds himself in a strange corridor and eventually figures out from the varying positions of the dead man he repeatedly sees what sort of structure he is in.

The tesseract or hypercube (a four-dimensional cube) is explored most fully in Robert Heinlein's "—And He Built a Crooked House—" (1941). In Heinlein's story, an architect in California, inspired by four-dimensional geometry, builds a house in the shape of an unfolded tesseract in three dimensions (see Fig. 8). An earthquake causes the house to fold up into its normal four-space shape so that all exterior surfaces are linked together with one another. When the architect looks out the window in one room, his line of vision, through the fourth dimension, follows the planes of the cube, showing him his own back (see Fig. 9). The description of this tesseract house and the experiences of the people in it are not simply fantastic inventions, they are carefully thought out, mathematically sound speculations.

"Mimsy were the Borogoves" (1943) by Henry Kuttner and C. L. Moore (written under the pseudomyn Lewis Padgett), is concerned with two boxes of educational toys from the future which contain topological puzzles designed to develop children's perception of a fourth dimension. These two boxes are sent into the past. One reaches Lewis Carroll's Alice, who leaves clues for their use in *Jabberwocky*. The other is found by two present-day children, who combine the toys and the poem's instructions to step into four-space and disappear.

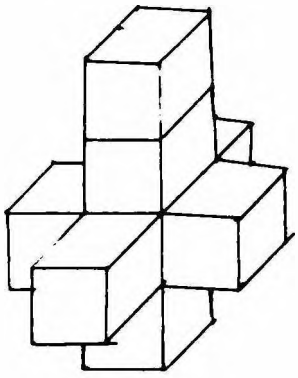

Fig. 8

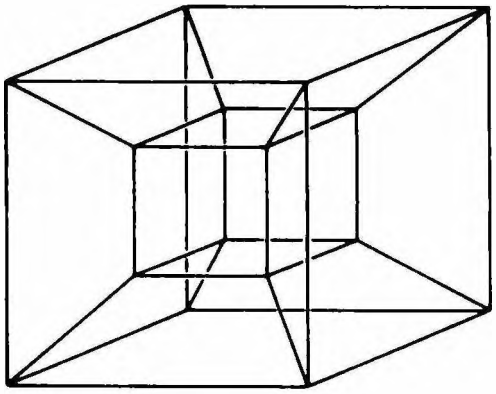

Fig. 9

Mark Clifton combined all the preceeding topological constructions—the Möbius strip, the Klein bottle, and the tesseract—in "Star, Bright" (1952), to follow the development of some genius children until they, like Kuttner and Moore's children, leave three dimensions behind.

Other Dimensions

These strange topological constructions lead us, as do the Flatland stories, into consideration of other dimensions beyond those of the height, width, and length parameters with which we are familiar. During the past century, the implications of mathematical dimensional analysis has suggested that there may be more than three dimensions or that time is a dimension as well (Nicholls *S. F. Ency.* 229). Unfortunately, the term "other dimensions" is also used for the possible existence of parallel worlds, causing some confusion (see Robert Silverberg *Other Dimensions* for examples of how the term is used).

The idea that time is another dimension (a fourth dimension) was introduced in mathematical analysis by Lagrange and D'Alembert in the eighteenth century. The occultist, John Zollner, confused the idea of other dimensions with the notion of "other planes of existence," a common idea of many spiritualists and theosophists of the late nineteenth century (Nicholls *S. F. Ency.* 229). Thus, in H. G. Wells's "The Plattner Story" (1897), the fourth dimension is populated by the dead who look down and watch the activities of those still living. This story initiated the category of the other worlds coterminous with ours in science fiction (Amis 39). In Charles Hinton's "An Unfinished Communication" (1895), the afterlife is represented as "freedom to move along the time-dimension to relive and reassess moments of life . . ." (Nicholls *S. F. Ency.* 229).

This religious interpretation of the fourth dimension is illustrated by Salvador Dali's painting *Corpus Hypercubus* (1954), and the concept is discussed in Martin Gardner's "The Church of the Fourth Dimension." In Dali's

painting, Christ is crucified on an unfolded hypercube (Heinlein's house upside down, see Fig. 10), and the contrast between two-space and three-space is emphasized by the suspension of a polycube above a checkerboard (Gardner *Mathematical* 50). The use of four-space as a symbol of a region transcendent to our time was a common theme of occultist P. D. Ouspensky and the German theologian Karl Heim (50).

H. G. Wells used the argument of time as a fourth dimension to explain his time-travel device in *The Time Machine* (1895). The idea, Wells wrote, "was begotten in the writer's mind by students' discussions in the laboratories and debating society of the Royal College of Science in the eighties. . . . It is the idea that Time is a fourth dimension and that the normal present is a three-dimensional section of a four-dimensional universe" (viii).

About this time, people in Ambrose Bierce's "Mysterious Disappearances" (1893) were suddenly vanishing into holes of "non-Euclidean space." Once these ideas were written in fiction form, they were quickly picked up among pulp writers. E. V. Odle's book *The Clockwork Man* (1923) featured an early Cyborg, human in appearance but with gears and wind-up keys in the back of the head. He could move in many dimensions when he was properly adjusted. This apparent freedom was, however, illusory; although he could perceive more, he could not change, learn, grow old, or love. He was not restricted by time or space, but could never really live. In Algernon Blackwood's "The Pikestaffe Case" (1924), a math tutor and his student enter into another space through a mirror (reminiscent of Lewis Carroll). The story ends with an observer commenting "He's found a new direction—and moved along it" (348).

Miles J. Breuer wrote three early pulp stories dealing with higher dimensions: "The Appendix and the Spectacles" (1928), "The Captured Cross-Section" (1929), and "The Gostak and the Doshes" (1930). "The Captured Cross-Section" is of particular interest since it explores how we would see a creature living in four dimensions. In the story, the creature appears as a series of cross-sections.

If an object is turned around in four-space, it comes out reversed. H. G. Wells was the first to base a science fiction story on this idea (Gardner *Ambidextrous* 173). In "The Plattner Story," a badly trained chemistry teacher at a boys' school, Gottfried Plattner, explodes a strange green powder which sends him into four-space. After wandering about in four-space for nine days, he is pursued by a shadowy creature and slips on a boulder, breaking the bottle of green powder in his pocket. Plattner is blown back into three-space but his body has been turned over. He writes in a mirror script with his left hand (he was right-handed), and his heart is on his right side.

Arthur C. Clarke's "Technical Error" (1950; originally titled "The Reversed Man") works with Wells's idea. But when Clarke's character returns from four-space, he is slowly starving to death because his body cannot use the molecules

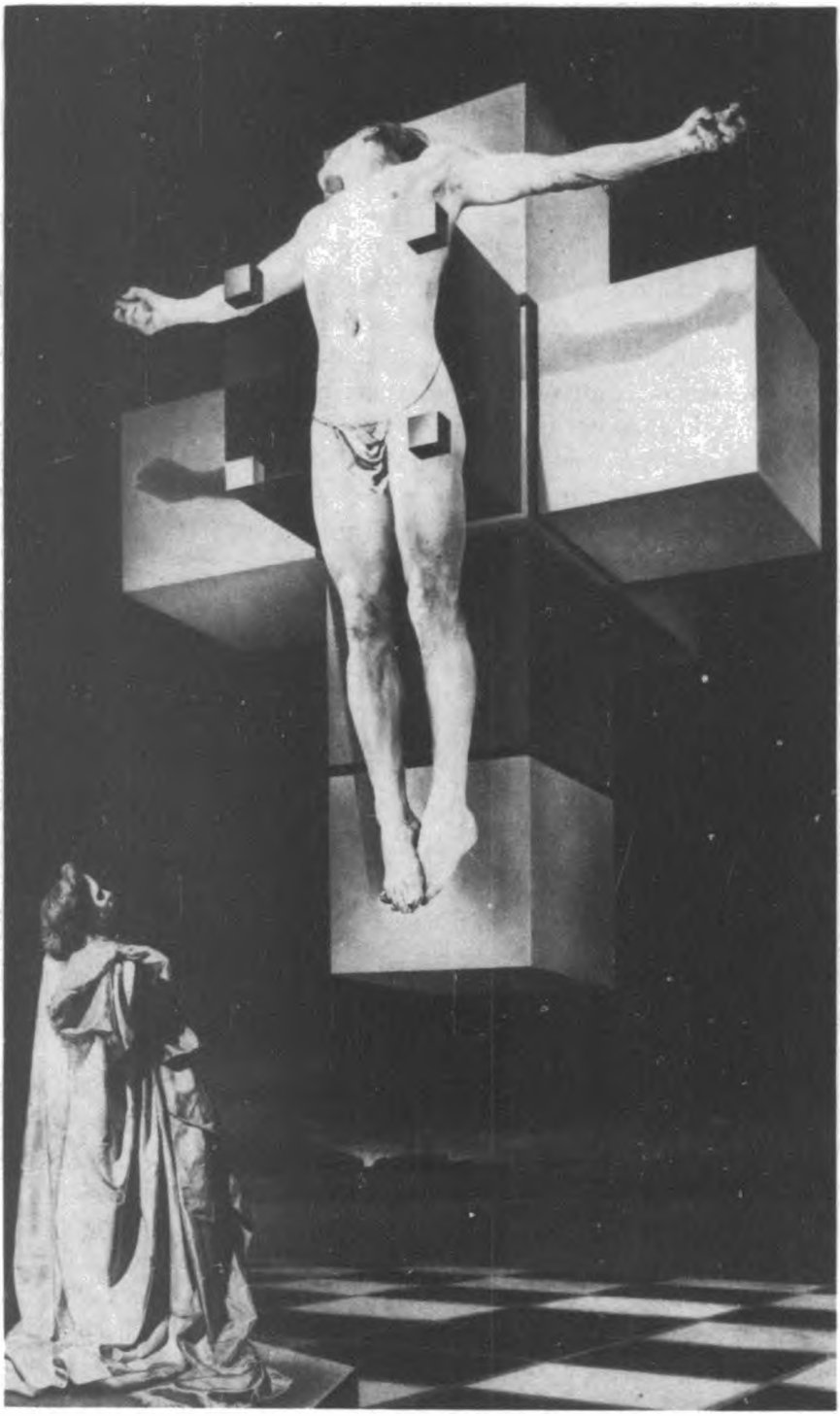

Fig. 10

in his food. He needs the stereo-isomers of his food to survive and must be sent back through four-space again. The same thing happens to the hero of George Gamow's "The Heart on the Other Side" (1955; written in honor of Niels Bohr's seventieth birthday). After taking a trip on a Möbius strip, the hero returns to find that his digestive enzymes have been reversed and he cannot digest levo-proteins (protein chemistry is asymmetric). The problem is solved by feeding him antibiotics, since they, along with some other molds, do use dextra amino acids.

Martin Gardner also dramatizes the laws of parity in his story "Left or Right?" in which, as Gardner summarizes, a ship full of helixons necessary for Earth's defense is flipped over several times in four-space before dropping back into three-space. The ship lands for repairs and the captain realizes that if the ship has been flippped over an odd number of times, the helixon would have changed handness and would be useless (*Ambidextrous* 217–18).

The Four-Color Conjecture

The simplest unproven conjecture of mathematics—at least to understand—was the Four-Color Theorem of topology. This conjecture, first suggested in 1852, asked how many colors are needed to color any map so that no two countries with a common border have the same color (Appel and Haken 153). It had been shown that five colors will suffice; how about four? Similar proofs had been found for surfaces more complicated than a plane. For one-sided surfaces, such as the Möbius strip, the Klein bottle and the projective plane, six colors are "necessary and sufficient." Seven colors are required for a torus ring and map-coloring problems had been solved for all higher surfaces investigated (Gardner *New* 116).

Martin Gardner's "The Island of Five Colors" (1952) best describes this problem. Here an island is discovered with five tribes having common borders (a mathematical impossibility for a plane surface); since the sea would also border all five districts, it would count as a sixth color. Thus we have six colors on a plane surface, which makes matters worse, although it may suggest that the island is a one-sided surface. A mathematician colors the districts to determine the shape from the air, but is foiled by another mathematician who claims to have disproven the Four-Color Theorem, and who devised the division in the first place.

The idea of the Four-Color Theorem also appears in H. Nearing's "The Hermeneutical Doughnut" (1954) to motivate the creation of a "non-simply connected space pocket" with seven dimensions in a madcap attempt to recreate Ezekial's biblical vision of a wheel within a wheel.

By way of an aside, the Four-Color Theorem was proven in 1976 by Kenneth Appel and Wolfgang Haken. The proof is rather controversial, although perfectly valid; not only was a computer used to generate and check the validity

of certain configurations, but the number of configurations generated was too large to allow a team of mathematicians, let alone an individual mathematician, to independently check the results (Appel and Haken 153). It took some sixty years of work to reduce the possible configurations down to a size that a computer could compute in a reasonable amount of time. In the process of generalizing the problem, much of Graph Theory was developed (162). Since the Four-Color Conjecture had remained unsolved for so long, some mathematicians feared it might be one of those problems predicted by Kurt Gödel and Alonzo Church which could not be solved (162). But in 1976, with over a thousand hours of computer time on three computers, a proof was obtained. The referees of the paper had to resort to an independent computer program to check some of the calculations (178).

Probability, Statistics, and Permutations

An interesting problem which appeals to both the mathematical and literary community is the Universal Library. According to Willy Ley's commentary, "Postscript to 'The Universal Library,' " Kurd Lasswitz, a professor of mathematics, first published his "The Universal Library" in a book of short stories in 1901 (245). The Universal Library contains all possible permutations of the alphabet and would thus contain all the knowledge and gibberish possible. Of course, there would be no way of knowing what was true and what was not true in this library. Lasswitz estimated the number of volumes in this library to be $10^{2,000,000}$. In 1929, Dr. Th. Wolff simplified the problem of the library by reducing the number of characters and got the number down to $25^{1,000}$ sheets of paper (246).

In Jorge Luis Borges's "The Library of Babel" (1941), the library is described:

> The universe (which others call the Library) is composed of an indefinite, perhaps an infinite, number of hexagonal galleries, with enormous ventilation shafts in the middle, encircled by very low railings. From any hexagon the upper or lower stories are visible, interminably. The distribution of the galleries is invariable. Twenty shelves—five long shelves per side—cover all sides except two; their height which is that of each floor, scarcely exceeds that of an average librarian. One of the free sides gives upon a narrow entrance way, which leads to another gallery, identical to the first and to all the others. To the left and to the right of the entrance way are two miniature rooms. One allows standing room for sleeping; the other, the satisfaction of fecal necessities. Through this section passes the spiral staircase, which plunges down into the abyss and rises up to the heights. In the entrance way hangs a mirror, which faithfully duplicates appearances. People are in the habit of inferring from this mirror that the Library is not infinite (if it really were, why this illusory duplication?); I prefer to dream that the polished surfaces feign and promise infinity . . . . ("The Library of Babylon" 79)

In Borges's library, each wall of each of the hexagons has five shelves, each shelf has thirty-two books. The books are all uniform with four hundred and ten pages, forty lines to a page, and eighty letters to a line. The titles on the books' spines do not indicate what the contents of the books are. The books contain permutations of twenty-five orthographic symbols, including the comma and the period as the only form of punctuation. Borges claims that all these numbers are from off the top of his head and have no symbolic meaning ("Auto." 243–44).

This Kafkian library is a nightmare. People wander about its corridors, which seem to go on forever, in a hopeless depression, in search of some sort of order or key with which to make use of this universe of books. The library is full of paradox, for it contains "the faithful catalogue of the library, thousands and thousands of false catalogues, the demonstration of the fallacy of these catalogues, the demonstration of the fallacy of the true catalogue . . ." ("Library of Babylon" 83). An Epimenides (or self-referencing) paradox would exist in form of a reference book that would list only those reference books that are not self-referential; this book must be false whether it is self-referential or not (Koehler 92).[2]

A similar sort of problem is contained in the illustration of of the six chimpanzees who would, by randomly hitting the keys of a typewriter, eventually reproduce all the books in the British Museum. Russell Maloney has fun with this in "Inflexible Logic" (1940) in which a man decides to test this hypothetical example of probability and sets six chimps at work. They, however, succeed all too well and produce no gibberish, pushing a mathematician's belief in probability past its limits.

Jorge Luis Borges's "The Garden of Forking Paths" (1944) contains a labyrinth in which all possible solutions and endings occur. Time is conceived of as an "infinite series of times" embracing every possibility. This is seen as a metaphor for C^C, where C is the cardinality of the continum (thus C^C is all functions from the real numbers into the real numbers) (Koehler 92). David Ketterer sees this story as a labyrinthine analogy for J. B. Dunne's idea "that the future exists, that at moments of choice and decision, alternate time tracks branch out, and from the vantage point of the fourth dimension, into which a person may hoist himself, the best choice may be made" (*New Worlds* 234). A similar type of book appears in Borges's "An Examination of the Work of Herbert Quain" (1941); it is described as follows: "The work is made up of thirteen chapters. The first reports the ambiguous dialogue of certain strangers on a railway platform. The second narrates the events on the eve of the first act. The third, also retrograde, describes the events of *another* possible eve to the first day; the fourth, still another" (75).

Symmetry is another important aspect of Borges's work, especially the imagery of mirror symmetry. The short story "Death and the Compass" (1942) is a mirror image of a detective story; the detective, Eric Lönnrot, seeks a complex answer to the puzzle instead of a simple one (Koehler 87). Obvious answers and

symmetries in a series of murders are rejected in favor of more complicated ones. The puzzle lures Lönnrot to the villa Triste-le-Roy, which forms a rhombus with the other three murder sites. "Close up, the house on the estate of Triste-le-Roy was seen to abound in superfluous symmetries and in maniacal repetitions; a glacial Diana in one lugubrious niche was complemented by another Diana in another niche; one balcony was repeated by another balcony; double steps of stairs opened into a double balustrade. A two-faced Hermes cast a monstrous shadow" (137). Here Lönnrot meets Red Scharlach and learns that the series of murders was set up to lure him into the villa. Scharlach knew of Lönnrot's weakness for complexity and wanted revenge for his brother's death. In the end, Scharlach kills Lönnrot after promising that in the next incarnation he will use a single line labyrinth (Zeno's paradox). Borges suggests that perhaps Lönnrot and Scharlach were the same person. "The end syllable of Lönnrot means red in German and Red Scharlach is also translatable, in German, as Red Scarlet" (Borges "Comm." 269).

With the emphasis of chance in quantum mechanics, many authors have explored how probability and statistics affect our lives. Borges's "The Babylon Lottery" (1944) gives the history of a lottery which gradually has become so complex and strangely embedded in the fabric of the society that it is now "a principle part of reality." In a less fantastic vein, Kate Wilhelm's "Strangeness, Charm and Spin" (1984) is an unusually quiet, meditative examination of the aspects of probability each individual must deal with in his or her life.

Stanislaw Lem interprets statistical ideas darkly, and in his book, *The Investigation* (1974), presents a mystery with only probable solutions. The police are faced with what seem to be resurrections from the dead. Bodies are moved about in locked rooms; varying hypotheses are suggested, but no conclusion is reached. This book is similar to, but not as satisfying as, Lem's mystery *The Chain of Chance* (1978), in which a series of murders turn out to be accidents due to a chain of coincidences.

Generally though, statistics are considered to be humorous. In Robert Coates's "The Law" (1947), the law of averages suddenly stops working and has to be artificially incorporated into the law books. It is no longer possible to predict what large numbers of people will do: bridges become jammed at unexpected times, trains are overcrowded or have only a few people on them, and everyone orders the same thing in a restaurant. Finally, laws have to be written to force people to react according to a pattern. "Thus, by plan, a person whose name began with 'G,' 'N,' or 'U,' for example could attend the theater only on Tuesday and he could go to baseball games only on Thursday, whereas his visits to a haberdashery were confined to the hours between ten o'clock and noon on Mondays" (19). Similarly, "A Very Good Year" by Jack C. Haldeman II (1984) suggests that suddenly a lump appears on the mortality graph's curve and no one dies of anything for an entire year. The next year, however, all but three people die.

Isaac Asimov's well-known "Franchise" (1957) extrapolates the use of statistics in predicting elections to the point that people will no longer need to vote because the results of an election can be determined by interviewing one carefully selected individual. Statistics also affect politics when a verifiably average man is discovered in William Tenn's "Null-P" (1951). His political success and the resulting social desire for blandness influence humanity for the next quarter of a million years until they are domesticated by intelligent Newfoundland retrievers. Douglas Adams uses a rather strange form of probability in his sometimes lighthearted and sometimes grim parody on science fiction, *The Hitchhiker's Guide to the Galaxy* (1979), to power his spaceship "without all that tedious mucking about in hyperspace" (85). The *Heart of Gold* is powered by an "Infinite Improbability Drive."

Hyperspace and FTL Travel

A major problem for many science fiction writers is the limitations nature sets on faster-than-light (FTL) travel and time travel. Writers wishing to explore space and time must ignore these limitations or invent ways around them. Using some of the strange forms from topology or other mathematical themes is a favorite method.

One problem with FTL travel is that as electrons approach the speed of light (c), they become more massive according to Einstein's theory of relativity. Science fiction writers try to figure out ways to cancel out the spaceship's mass in this situation. Isaac Asimov's story "Billiard Ball" (1967) involves an object whose mass is reduced to zero, causing it to speed off at a velocity of c. This is due to an equation relating to relativistic mass which shows that any velocity above c would cause mass to be an imaginary number (the square root of a negative number). No one knows just what this means, but these hypothetical FTL particles are callled "tachyons," and many science fiction writers have adopted them as their spaceships' power source.

Another way of taking a shortcut past the laws of physics is through hyperspace, a higher-dimensional space tunnel formed by space curvature, a sort of fold involving extra dimensions. This is the sort of travel technique Heinlein uses in *Starman Jones* (1953).

Other authors see hyperspace as a smaller universe near ours where every point here corresponds or maps onto a point in the other universe. Nicholls et al. mentions some different interpretations of this idea in *The Science in Science Fiction*. In Frederik Pohl's "The Mapmakers" (1950), a very small error in the map universe results in an error of millions of light-years in normal space (72). However, in Bob Shaw's *Night Walk* (1967), the hyperspace or "null-space" has an "alien geometry"; it is not reciprocal and you cannot retrace your steps. Only small "portals" or jumping-off places provide safe routes of travel. In R. R. Martin's story "FTA" (1974), hyperspace turns out to be a longer pathway (72).

Hyperspace is also seen as the site for parallel universes. In David Duncan's *Occam's Razor* (1957), a parallel universe is reached through the topological structure of a soap bubble on a wire frame (Nicholls *Science* 97). The surrealist novel *White Light* (1980) by mathematician Rudy Rucker is set in universes based on an infinite series (97). The advantage of a parallel universe is that the traveler avoids changing the future when he goes into the past, thus avoiding such paradoxes as those which occur in Robert Heinlein's "—All You Zombies—" (1959). In this story, a man finds that he is not only his own father, but also his own mother.

Artificial Intelligence

While we generally think of artificial intelligence in terms of the technology and hardware involved, mathematics is also at the very heart of this field. In 1931 Kurt Gödel stated in his theorem that every deductive system complicated enough to contain arithmetic also contains some theorems which are "undecidable" (Gardner *New* 117). Thus, in any arithmetical system, certain propositions cannot be either proven or disproven from its axiom, which means that no system can completely describe itself. Rudy Rucker, in his novel *Spacetime Donuts* (1981) concludes from Gödel's theorem that even if a machine can do everything a human can, it may not be self-aware (Nicholls *Science* 129).

Alan Turing, a leading theorist in artificial intelligence, disagrees. He interprets Gödel's Theorem as saying that a machine which is intelligent would also have to have the capacity to make mistakes and to be unable to make up its mind once in awhile (Nicholls *Science* 129). The problems and paradoxes inherent in defining just what self-aware means is discussed in Douglas R. Hofstadter's writings. In general, most science fiction writers agree with Turing, and various computers, robots, and androids populate their stories (see the anthology *Machines That Think*, edited by Isaac Asimov).

One of the most recent wrinkles in this area is the self-aware software in Joseph H. Delaney and Marc Stiegler's stories collected in *Valentina: Soul in Sapphire* (1984). Valentina is not a human personality coded into a program, but rather a program that evolved into self-awareness while performing her job of infiltrating other programs.

Communicating Mathematics

Henry Kuttner's novel *The Fairy Chessmen* (1951) includes a mathematician as protagonist and an equation which drives everyone who tries to solve it insane. Damon Knight gives a summary of the book in his collection of essays, *In Search of Wonder* (141–44). Kuttner's short novel opens and ends with the line, "The doorknob opened a blue eye and looked at him." An imaginary enemy country, the Falangists, possess an equation from the future with which it intends to win a third world war. The equation, which uses variables that ought

to be constants, is used to produce strange animations of objects around one of the characters. The equation is finally solved by a mathematician who plays fairy chess, a type of chess played with variable rules.

This conclusion has been criticized for its misunderstanding of how mathematics works. Since all theoretical mathematics is independent of physical constraints, any mathematician should be able to handle nonconceptual ideas without mental disturbance. Mathematicians regularly work within several dimensions and with different types of infinities: it will take more than varying constants to drive a mathematician insane.

Mathematicians do have a problem communicating their work to people outside their field, and Kuttner, along with others, confuses mystical numerology with mathematics. In general, mathematicians are portrayed as "absent-minded, ineffectual and unworldly" (Nicholls *S. F. Ency.* 386). But these misunderstandings have become more rare in recent years.

Theoretical mathematics is presented as an indication of the better side of human behavior in Bruce Stanley Burdick's "Q. E. D." (1984). An "alienologist" uses classical geometry to prove that humans are people to a group of aliens, the Plexians, who have wisely concluded that humans aren't really people like themselves and thus should be controlled. The alienologist then convinces the aliens that the humans, who have come to take over their world, don't always behave like people and some control over their actions would be a good policy.

Similarly, loss of knowledge about mathematics is indicative of civilization's total decay. In Tim Powers's *Dinner at Deviant's Palace* (1985), the narrator, Rivas, reluctantly visits a fortune-teller who, after speaking to spirits on an unconnected telephone, tells him, "You see, in every equation there's an *unknown* factor—the hex, as we mathematicians say—and in order to untangle the various lifelines involved and see which one comes out healthy at the end, it's necessary to . . . " (33). This society has lost all of its history.

Technology has been preserved in Isaac Asimov's classic "A Feeling of Power" (1957), but simple arithmetic has been forgotten due to the widespread use of a "pocket computer" (written long before calculators were invented, the story should be read today as a warning). With the loss of the most elementary of maths, this society has lost most of its culture and knows little but war.

John Horton Conway of the University of Cambridge came up with a new way to construct counting numbers starting with the null (or empty) set. He explained his new system to Donald E. Knuth, a computer scientist at Stanford University and author of the highly acclaimed *Art of Computer Programming*, over lunch in 1972. Knuth was fascinated by the system and wrote an introduction to it in the form of a novelette. Martin Gardner thinks this is "the only time a major mathematical discovery has been published first in a work of fiction" (*Mathematical* 17). The book, whose full title is *Surreal Numbers: How Two Ex-Students Turned on to Pure Mathematics and Found Total Happiness* (1974), is

a dialogue in which two people explore and develop Conway's number system. The aim of the book, Knuth explains, is "to teach how one might go about developing such a theory" (113). It also attempts to improve understanding of the study of mathematics. An unusual book, it is not, like most mathematical science fiction, what Clifton Fadiman calls "Invitational Mathematics," a piece of fiction designed to introduce aspects of mathematics, but which does not require any work from its readers (*Mathematical* xviii). *Surreal Numbers* does expect the reader to work at the mathematics along with the characters. However, it also differs from "Recreational Mathematics" which involves extended, entertaining word problems and is limited in scope to the solution of a problem. Knuth's book is a "singleton"; it lies in a category of its own.

What Knuth is trying to do in his book is to show the "passions, and philosophy of mathematics" (114), in a form more available to those outside the field. Although much more sophisticated and demanding mathematically, this book is still moving toward the same goal as science fiction stories with mathematical themes beginning with *Flatland:* to create a bridge leading readers to ideas and concepts difficult to communicate in mainstream fiction.

Notes

1. It must be admitted, however, that science fiction writers often will use pseudo-mathematical and scientific terms in order to give validity to weak plots.
2. It is interesting to note that one of Borges's first jobs was involved with cataloging the collection of the Miguel Cané branch of the Buenos Aires Municipal Library (Borges "Auto." 241).

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The Launching Pad

(continued from page 184)

the perfectability of humanity and society and the doubts—even despair, if you wish—as an accelerating Industrial Revolution disrupted the orders (note the plural) on which Western civilization had been based. For the sake of controversy, let me suggest that the responses ranging from Marxism to Existentialism have not sought the free range of unpredictable change so much as they have attempted to preserve some semblance of the old orders under new, simplistic authorities. Add to this the disenchantment with the Industrial Revolution which first surfaced in Europe and then in America, and I suggest that you have arrived at the 1980s—a time when heroic fantasy involving magical quests takes a seemingly ever more important position in modern fiction. Don't shrug your shoulders and say something like "Clareson is at it again." Disprove the assertions and their implications; *Extrapolation* will be happy to publish your sound rebuttags.

One final point along this line: I think the time has come for publishers such as Greenwood and Southern Illinois to end the reliance on thematic volumes of essays. At best they cover only a fragment of the field, often being built almost entirely from papers given at meetings. We need sustained studies of historical periods and biographical/critical studies of individual writers. If we care nothing for the past—for the historical perspective—what can we expect of our students?

As I said, I attended Marcon XXI and thus had the opportunity to speak at least briefly with Roger Zelazny and Kelly Freas and somewhat more with writers such as Michael Kube-McDowell (whose *Enigma* has just been published), and to meet new novelists such as Lois McMaster Bujold and Joan Slonczkewski. All three will bear watching (and I hope will arouse critical reaction). A shorter piece by Kube-McDowell shares a trilogy, *After the Flames* (Baen Books, $2.95), with Robert Silverberg and Norman Spinrad.

I will attend Westercon after SFRA in San Diego. Although at the moment I do not know how I will satisfy Neil Barron's insatiable appetite for a pagan princess, I do have an idea how I will at least try to avoid old ruts during a panel on teaching science fiction. Several years ago the novelist David Bradley, author of *The Chaneysville Incident* (1981) and currently involved in an interview with Robert A. Heinlein for *Rolling Stone*, visited the Wooster campus. At a meeting of the Black Studies Seminar he suggested that there was actually no such thing as a separate and distinct black literature: that instead black writers were contributing a much needed element to American literature. One could hear the gasps, especially from some members of the faculty. I think that at San Diego I will propose that science fiction and fantasy should not be relegated to a ghetto course but should be included in the appropriate American / British / World literature courses. I still maintain, as I did in

Publisher's Weekly—and I am not alone in the opinion, obviously—that science fiction and fantasy speak more clearly to our students than do social realism and naturalism because both the literature and the students are concerned with the future, not with the hangups of the past (even if that past is the early twentieth century).

While in San Diego, I hope to make housing arrangements for Alice and me while we work at the Huntington this fall; in February we go to London after attending Boskone XXIV.

May you have a good academic year in 1986–87. See you next summer or fall.

T.D.C.

STAR CLUSTER

Clarke's Affirmation

■ Arthur C. Clarke's *The Songs of Distant Earth* (Del Rey, $17.95) is not a novel in any conventional sense. No dramatic confrontation urgently needs resolution; no problem must be solved in order to avoid apocalypse; no characters are caught in the throes of inner torment. Yet *The Songs of Distant Earth* will remain one of the most memorable stories of 1986, and if the rumor is true that this volume will be Clarke's final "novel," then it provides a fitting climax to the fictional work of the most distinguished British science fiction writer of his generation. He easily ranks with Olaf Stapledon, to whom Clarke has acknowledged early indebtedness. Indeed, one may argue that he surpasses Stapledon in that his central vision of humanity transcends the essentially melancholic pessimism of the author of *Last and First Men* (1930).

Some critics have noted—for various reasons—the similarity between what has probably been Clarke's most popular novel (at least in academic circles), *Childhood's End* (1953), and the work of Stapledon. To that apocalyptic account of humanity's transformation, Clarke appended a crucial note asserting that the views expressed in the novel were not necessarily those of the author. In a personal letter he later suggested that he had included the note because he did not want to have his friends and readers believe that he had suddenly changed his basic view that humanity would attain the stars. In the story "Guardian Angel" (1950), from which that novel grew, humanity joined the Overlords in bringing advanced civilization to the inhabited worlds of the galaxy. He did not deny the stars to humanity.

Nor does he do so in *The Songs of Distant Earth*. As a consequence the present narrative is more an idyllic moment in a vast epic than it is tense, dramatic fiction. Its storyline has two points of departure. In the third millenium when humanity learns that the sun will go nova, the distant stars are seeded so that the human species will survive somewhere in the galaxy. At the eleventh hour, so to speak, in the middle of the fourth millenium, scientist

discover the "quantum drive," thus enabling a giant starship to convey its cargo—a remnant of humanity frozen into hibernation—to the distant world of Sagan II. Its crew has witnessed the destruction of the solar system. With seventy-five light years remaining in its voyage, the starship *Magellan* orbits the world Thalassa, which had been successfully seeded some seven centuries before the arrival of the ship. Although "star-sundered cousins" enjoy a first contact after an interval of a thousand years, the mission of the ship is to replenish the ice which forms an ablation shield to protect the *Magellan* from interstellar dust and gas.

In an author's note Clarke explains that the novel has grown from a short story he wrote during the 1950s, but "this version was directly—and *negatively*—inspired by the recent rash of space-operas on TV and movie screen"; although he admires "the best of *Star Trek* and the Lucas/Spielberg epics," he regards them as "fantasy," and has sought "to create a wholly *realistic* piece of fiction on the interstellar theme." In the same note he acknowledges the "backlash" resulting from the failure, as yet, of radioastronomers to make contact with any form of extraterrestrial life. He also emphasizes that since in all probability the speed of light will never be attained, "the very closest star systems will always be decades or centuries apart." His "only really wild extrapolation" involves the concept of the quantum drive by which the starship gains the speed and mobility which it does have; he carefully outlines the "paternity" of his wildest speculation in his acknowledgments.

The result is not, of course, the realism of a novel concerned with the social scene, present or future. *The Songs of Distant Earth* exemplifies perhaps better than any recent novel that science fiction is indeed a literature of ideas. It would require a catalog to suggest the scope of Clarke's ideas, all of which are provocative. Yet it is not the science per se that one remembers after finishing the narrative, and perhaps most readers will miss the fact that in the world of Thalassa, Clarke has sketched an essentially utopian society in which the descendants of humanity so govern themselves as to overcome the stresses of the twentieth century. Although the *Magellan* is only a star of the sixth magnitude by the time of the deaths of those who knew and loved its crew, and although the settlement of Sagan II remains uncertain somewhere after the light-years ahead, one senses that humanity will make the effort. One feels that, like Faulkner, Clarke believes that humanity will not only endure, humanity will prevail.

T.D.C.

BOOKS

The Frank Reade Library

■ No sooner does one praise the accomplishments of E. F. Bleiler than he outdoes himself. Because he edited in 1979 a two-volume selection of Frank Reade, Jr., titles, his latest venture must be particularly satisfying to him. The *Frank Reade Library* (Garland Publishing; $85 per volume; $750 for the ten-volume set) reproduces "in facsimile the complete run of the most important science fiction series in 19th century America." The judgment is certainly true if one ignores the future war and imaginary voyage motifs and concentrates upon that portion of science fiction aimed at a juvenile audience and emphasizing the inventions which were taking place not in the future but in the here-and-now laboratories of such men as Thomas A. Edison. Nor should one forget that Bleiler has gathered together for the first time the 187 adventures published between September 24, 1892, and June 10, 1898; to these he has added an earlier story by a yet-unknown author, *Frank Reade, The Inventor, Chasing the James Boys with His Steam Train* (1890).

That six-year span in the 1890s is crucial and points to the first importance of the Frank Reade series: following on the numerous inventions achieved essentially in the 1880s, the exploits of the boy inventor measure the impact of the new technology on the American public imagination. Reinforced by an examination of the magazines intended for an adult audience, the appearance of Reade's series marks the beginning of America's infatuation with the machine. Moreover, the contents of the 188 stories reinforce the conclusions based on the 35 stories of the two-volume selection made in *Some Kind of Paradise*. In addition to an index regarding the concern for technology, however, the stories also provide insight into the morality and politics which shaped the last decade of the century. After great personal effort, Bleiler has provided scholars in various fields with an essential cornerstone, but in many respects the *Frank Reade Library* serves as an example of the kind of rescue (salvage?) work which must be done before the early publications disappear completely.

Not the least of the series' importance lies in the fact that it is a facsimile reproduction so that it includes both cover and interior illustrations as well as ads and listings of other periodical titles. Despite their obvious relationship to the dime novel, one must not forget that they are a transitional form—having a sixteen-page format and costing only a nickle. Many questions regarding their print-run, distribution, and circulation have not been fully answered. One sees in them the beginnings of the pulp magazines as much as a continuation of the book-length format. By making this collection available, Bleiler may well have raised as many questions as he answered. Once again his contribution to the study of American popular literature has proved invaluable. The *Frank Reade Library* is a crucial item for research libraries both in the United States and abroad.

T.D.C.

NOTES AND QUERIES

■ *Mosaic:* Call for Papers

Mosaic, the leading scholarly journal for the interdisciplinary study of literature, invites submissions for an international conference to be held at the University of Manitoba, May 14–16, 1987. Entitled "Contexts," the conference is designed to explore and promote the ways in which insights from other disciplines or areas of research can be used in the study of literature, and vice versa. It is hoped that the entire range of interdisciplinary perspectives will be represented. The deadline for abstracts (one page) is September 1, 1986; finished papers (35-minute reading time), January 1, 1987. Submissions in French are welcome. Partial reimbursement of travel may be available for participants, and a selection of presented papers will be published as a *Mosaic* special issue. Send abstracts and requests for further information to John J. Teunissen, Program Chairman, "Contexts," c/o *Mosaic*, 208 Tier Bldg., University of Manitoba, Winnipeg, MB., Canada R3T 2N2.

Nice Proceedings Available

The published *Proceedings of the Second International Science Fiction Conference in Nice* (April 1985) is now available. Table of contents and further ordering information may be obtained by writing to M. Jean Émelina, Faculté des Lettres et Sciences Humaines, 98 Boulevard Édouard Herriot B.P. 369–06007 Nice.