

Book Review

Chemistry in Science Fiction, Jack H. Stocker, Ed. (ACS Books, 1998) 292 pp., ISBN 0-8412-32482; \$19.95 (paperback)

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Although I have no firm data with which to support my prejudice, I would guess that many, if not most, scientists have at some time in their lives been readers of science fiction. Long before we understand enough science to be able to follow the details of technical arguments, science fiction provides an avenue for participating vicariously in the romance of science, in much the same way that good expository science writing does at a somewhat more advanced level (e.g., like that in *Scientific American*). I recall with pleasure reading over the years a range of science fiction tales, ranging from Isaac Asimov's fascinating "I, Robot" to Ray Bradbury's "The Martian Chronicles," to William Miller's "A Canticle For Leibowitz", to Leo Szilard's post-apocalyptic short stories in his collection "The Voice of the Dolphins".

Interestingly, though, in thinking back over my admittedly eclectic "life reading list", I cannot recall having seen many stories revolving around chemistry - biology definitely, physics aplenty, even some geology, but not much that I could honestly call chemistry (Asimov's work obviously excepted). So it was with a mixture of interest and curiosity that I turned to "Chemistry and Science Fiction", a collection of essays edited by Jack H. Stocker that grew out of the 1992 ACS Symposium sponsored by the History of Chemistry Division, wondering if there was really enough chemically-based science fiction to justify an entire book.

The answer (as is the case with so many things) seems to be "It depends on your definition." In his introductory essay, Stocker surveys the science fiction landscape and tackles the difficult (and probably ultimately impossible) task of trying to decide where the borders of science fiction are reached on the slippery slope beginning with what he calls "hard science fiction" (stories driven by science, even if the scientific basis is a bit tenuous), and proceeding through "social science fiction", e.g., George Orwell's *1984*, "space opera", e.g. the *Star Wars* sequence, to "swords and sorcery", ranging from Edgar Rice Burroughs to Ann Rice's vampire novels. I should probably admit that I am a purist, preferring the science in my science fiction to be real - or at least a plausible extrapolation or speculation - and to go beyond vocabulary merely used to dress up a tale in scientific trappings. In a subsequent chapter, Connie Willis looks at the various roles

played by science in science fiction - as the subject of the story, as plot device, as background and as metaphor - eventually arguing that science in fact informs all science fiction because, as she puts it, science fiction: “is one huge thought experiment, with each author observing the world, developing hypotheses about it, and setting up experiments in the form of stories to examine those hypotheses.”

Given the breadth of this seemingly all-encompassing definition, one might be tempted to classify even such disparate works as Alan Lightman’s *Einstein’s Dreams* and Umberto Eco’s *The Name of the Rose* under the rubric of science fiction!

The book’s second section (“His- tory and Tradition”) consists of seven chapters devoted successively to H.G. Wells, Planetary Chemistry, the science fiction of Isaac Asimov, Thomas Pynchon’s *Gravity’s Rainbow*, Sherlock Holmes as chemist, “*Real Chemistry as the Basis for Science Fiction*”, and the cover art of science fiction magazines. I found most of the chapters interesting, but particularly enjoyed Ben Chastain’s essay on Asimov (*Beryllium, Thiotimoline, and Paté de Foie Gras*), which confirmed my opinion that Asimov is arguably the best writer to have used chemistry intelligently and plausibly in his fiction. The final chapter in this section (*On the Covers of Science Fiction Magazines*), which consists of reproductions of eight covers from the mid-twenties to the early sixties, along with brief commentaries on each, had only the most tenuous connection to chemistry, and was largely eye candy.

The book’s brief third section (two chapters) focused on television and film, in particular the several *Star Trek* TV series end films and the Dr. Who TV series, and included discussion of several legitimately chemistry-based stories from each.

The fourth section (“Scientists at Play”) is a gem, containing three amusing short stories written by scientists with tongues firmly in cheek. Isaac Asimov accounts for two stories, *The Endochronic Properties of Re- sublimated Thiotimoline* and *Paté de Foie Gras* (a scientific retelling of the fable of “The Goose That Laid the Golden Egg”), and the third - unexpectedly - by Michael Dewar and several imaginatively named col- leagues is on temporal chirality. A story I would have liked to see included in this section is Szilard’s *Report On Grand Central Terminal*, the tale of an archeological expedition from another planet sent to explore the ruins of post-apocalyptic New York City, and specifically their examination of Grand Central Terminal. The way in which they propose correct hypotheses based on incorrect reasoning and absurd conclusions based on apparently solid reasoning, besides being humorous, is also a caution about taking ourselves too seriously.

A final bit of solidly chemical humor that might have made a good addition is an article I recall having read during the sixties in the fictitious *Berichte der Durstigen Chemischen Gesellschaft* (an April Fool’s parody of the real *Berichte*, if memory serves) on the

remarkable chemical unreactivity of diaza-bicyclo[0.0.0]ethane, a compound whose chemical inertness is seemingly inconsistent with the enormous strain energy expected for a bi-cyclic compound with zero-bridges (until one realizes that the molecule in question is dinitrogen!).*

The last section, “Encouraging Creativity in the Classroom”, consists of three chapters devoted to the use of science fiction in education. The first chapter points readers to some resources for using science fiction stories in the classroom (which I found useful), then looks at having students examine scientific concepts through writing their own fiction (scientific fables?). The second reports the results of a survey of scientists’ attitudes about using science fiction to teach science, while the last chapter is a reprint of a 1953 article from *Astounding Science Fiction* magazine that describes the intriguing “Arcturus Project”, in which students in MIT’s Industrial Design course were given the assignment of designing products for the residents of a fictional world.

Chemistry and Science Fiction concludes with a sixteen-page appendix entitled “Recommendations For Further Readings”, in which five of the authors propose fairly extensive reading lists (mostly annotated), providing a springboard for the interested reader. For the science fiction neophyte, this may turn out to be the most useful section of the book.

Overall, I found *Chemistry And Science Fiction* interesting, though somewhat uneven in tone. I cannot say it convinced me that a great deal of science fiction involves chemistry in a significant way, although there does appear to be more than I had expected. In the world of science fiction, though, it appears that the Central Science is perhaps less central and more peripheral, and I was left longing for the arrival of another Asimov.

* Another example comes to mind: A publication by the spurious S.C.H. Windler in *Annalen der Pharmacie*, the forerunner of *Liebigs Annalen*, in the 1830, supposedly written by Wöhler, a take-off on Dumas’ substitution theory, in which each atom in potassium permanganate is successively substituted by chlorine, and each resulting compound is still water soluble, giving a violet solution. (The supposed author written as Schwindler is, of course, the German for “liar”.)[ed.]