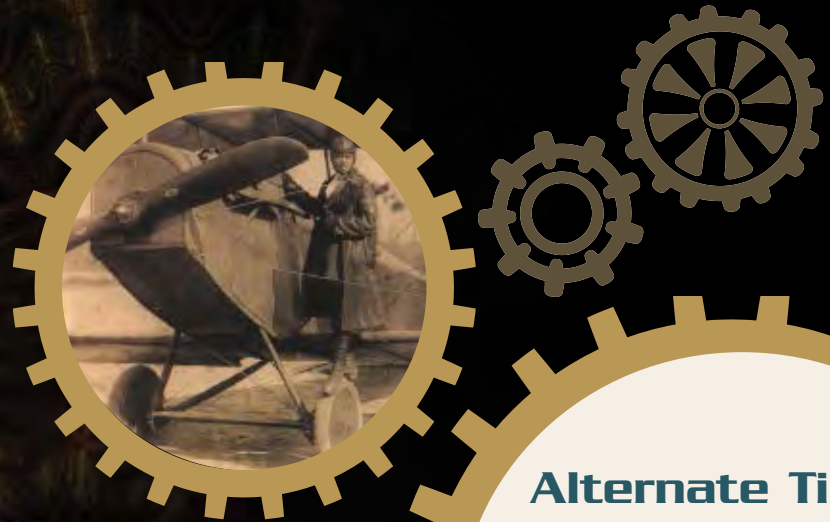


Alternate Times

Exploring
Science Fiction
Literature



**Alternate Times:
a writing contest
for Tampa Bay high
school students
See Pages 14-15
for details**



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What is science fiction?

"(Science fiction is) stories whose objective is to explore, to discover, to learn, by means of projection, extrapolation, analogue, hypothesis-and-paper-experimentation, something about the nature of the universe, of man, or 'reality.'"

– Judith Merril

"Science fiction can be defined as that branch of literature which deals with the reaction of human beings to changes in science and technology."

– Isaac Asimov

"Science fiction represents how people in the present feel about the future."

– Kim Stanley Robinson

Science fiction is a literature of imagination, of ideas and thought experiments, of "what if."

A science fiction story may be set on another planet; thousands of years in the future; in a universe with different physical laws; within a society with more, less or different races or genders; or in a world similar to our own but with a different past.

Science fiction author Brian W. Aldiss once called science fiction "a mirror of the present," which, set up 50 years into the future, serves to illuminate what seems like chaos from our vantage point in the present.

Setting a story in an unfamiliar environment allows authors to explore the potential consequences of political, social, technological and ecological change; of issues such as war, terrorism, climate change, pandemics and overpopulation; and the possible effects of these on individuals and society.

Chris McKitterick, director of the Gunn Center for the Study of Science Fiction at the University of Kansas, writes: "Science fiction is the literature of the human species encountering change, whether it arrives via scientific discoveries, technological innovations, natural events or societal shifts.

"Science fiction is the literature of ideas and philosophy, answering such questions as, 'What if?' or 'If this goes on.' Science fiction is multi- and interdisciplinary. It embraces and serves every field of study, and provides a method for creative speculation in non literary fields.

"Science fiction provides an approach to understanding the universe we live in."

Sources: *The Independent*, Gunn Center for the Study of Science Fiction

Why is science fiction important?

Of course, science fiction can be used to illustrate various aspects of science, technology, engineering and math. As scientist and science fiction

author Gregory Benford notes, "Illuminating physical law through science fictional thought experiments can awaken students' inventive, playful side."

However, science fiction also can be used to illuminate and examine history, philosophy, religion and morality; to improve literacy and critical thinking skills; and, perhaps most importantly, to examine the consequences of scientific and technological development on our society.

In computing, a virtual space in which new or untested software can be run securely without impacting existing systems is called a "sandbox." In the same way, science fiction is a literary sandbox in which authors and readers can explore many possible futures "without," as astronomer and educator Martin Griffiths notes, "having to experience the horrors of the reality."

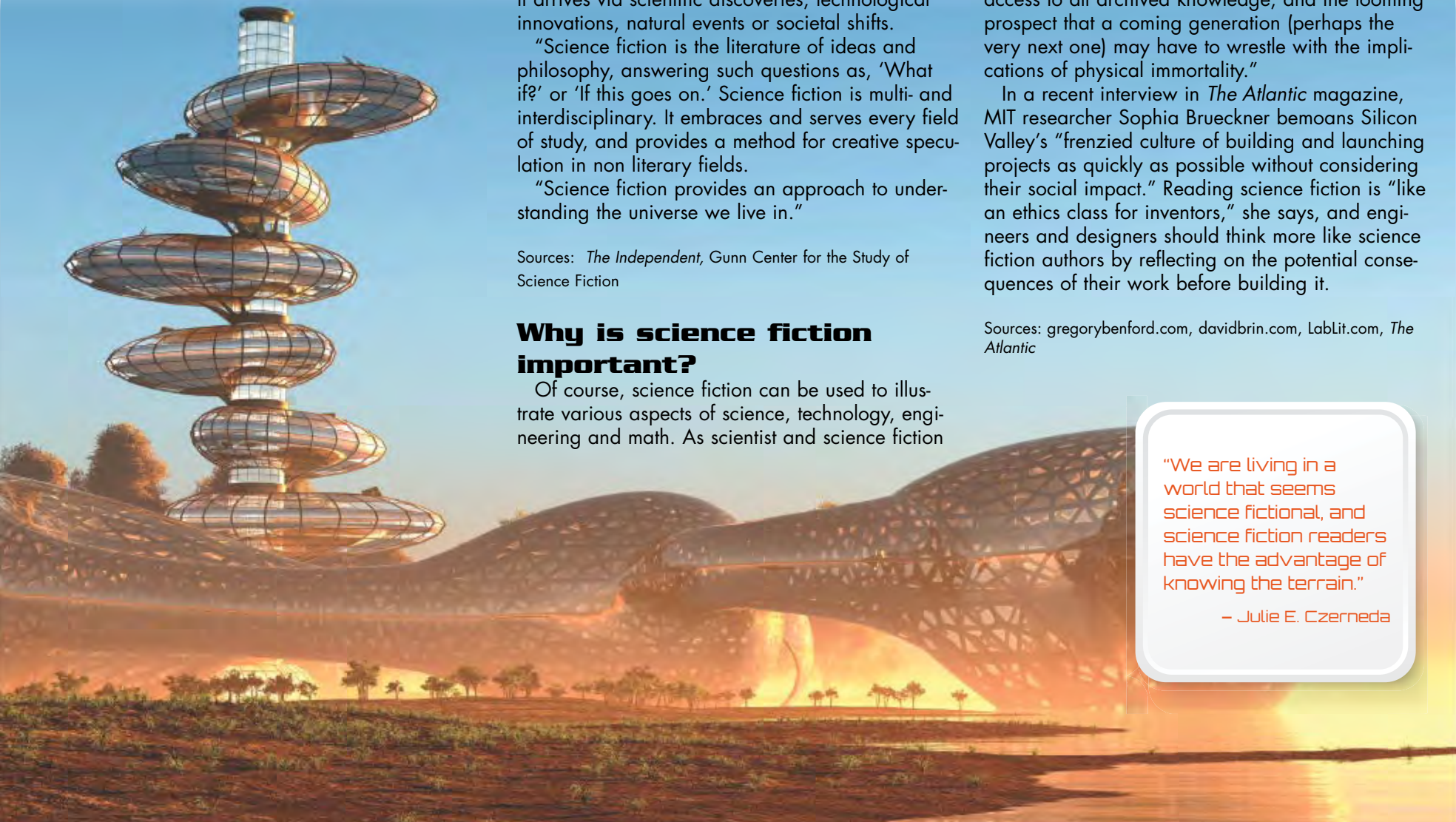
As the pace of social and technological change continues to accelerate, the sandbox quality of science fiction will only increase in importance and relevance. As scientist and science fiction author David Brin writes, "There is no genre more relevant to this rapidly transforming world we live in, where citizens are called upon to contemplate issues that would have boggled their grandparents: environmental degradation, the extinction and creation of new species, cloning, artificial intelligence, instant access to all archived knowledge, and the looming prospect that a coming generation (perhaps the very next one) may have to wrestle with the implications of physical immortality."

In a recent interview in *The Atlantic* magazine, MIT researcher Sophia Brueckner bemoans Silicon Valley's "frenzied culture of building and launching projects as quickly as possible without considering their social impact." Reading science fiction is "like an ethics class for inventors," she says, and engineers and designers should think more like science fiction authors by reflecting on the potential consequences of their work before building it.

Sources: gregorybenford.com, davidbrin.com, LabLit.com, *The Atlantic*

"We are living in a world that seems science fictional, and science fiction readers have the advantage of knowing the terrain."

– Julie E. Czerneda





Science fiction resources

- AboutSF** aboutsfc.com
AlternateHistory.com.....alternatehistory.com
Dell Magazines Award for Undergraduate Excellence in Science Fiction and Fantasy Writing
dellaward.com
Encyclopedia of Science Fiction.....
sf-encyclopedia.com
Gunn Center for the Study of Science Fiction..
sfcenter.ku.edu
International Association for the Fantastic in the Arts.....fantastic-arts.org
SFF Net.....sff.net
SF Sitesfsite.com
Science Fiction & Fantasy Writers of America..
sfwa.org
Science Fiction Foundationsf-foundation.org
Science Fiction Poetry Association..sfpoetry.com
Science Fiction Research Associationsfra.org
Uchronia: The Alternate History List.....
uchronia.net

Science fiction resources for teachers

- Aetiology: Using zombies to teach science**.....
scienceblogs.com/aetiology/2012/07/16/using-zombies-to-teach-science
David Brin's Science Fiction That Teaches Science
davidbrin.com/sfteaches.html
David Brin's Using Science Fiction in the Classroom
pinterest.com/davidbrin/using-science-fiction-in-the-classroom
Chymist.....chymist.com
Julie E. Czerneda's Classroom.....
czerneda.com/classroom/classroom.html
Gunn Center for the Study of Science Fiction...
sfcenter.ku.edu
Hunger Games Lessons hungergameslessons.com
SciFiEd.....scifieducation.org
The Solae Foundationsolae.org
STEM Behind Hollywood
education.ti.com/en/us/stem-hollywood
Using Science Fiction to Teach Science: Science Fiction in the Classroom.....
scoop.it/t/using-science-fiction-to-teach-science
A Virtual Introduction to Science Fiction: Online Toolkit for Teaching SF.....virtual-sf.com
What If? History Project.....sites.google.com/a/scienceleadership.org/what-if-history-project/home

So why should YOU read science fiction?

- Science fiction is legitimate literature.
- Good science fiction demands critical thinking and reflective response.
- Science fiction is interdisciplinary, combining aspects of science, history and other subjects with literature.
- Science fiction demands that its readers be thoughtful and engaged.
- Science fiction demands that its readers be problem solvers, to stretch the mind to new possibilities and approaches, and to not only think outside the box, but also to create new realities and new boxes.
- The world of the future is unpredictable, and readers of science fiction are better prepared for the challenges of all possible futures.
- Science fiction is fun to read!

Source: Adapted from "Science Fiction (and Fantasy) Course" by Mary J. Rose-Shaffer on AboutSF.com

Questions to consider while reading science fiction

Setting

- Do you think that the author accurately describes scientific principles? Why or why not?
- How can the setting of this text be compared to our world and time?

Characters

- Explain the characters' involvement in the plot and story line.
- How are the characters important to the action of the text?
- Are there any types of characters in the story who are not found in other literary genres?

Plot

- Does the plot focus on a particular area of science or scientific principle? Explain.
- Do the characters participate in a documented or controversial area of science? Explain.
- What is the conflict in the story? Do you think it is real or fictional? Provide examples to illustrate your choice.

Summary

- Did you learn something about science concepts by reading this text? Explain.
- Did this text help you gain an understanding of the present and future? Explain.

Source: ReadWriteThink.org

	Science fact	or	science fiction
Android	<input type="checkbox"/>		<input type="checkbox"/>
Cyborg	<input type="checkbox"/>		<input type="checkbox"/>
Dyson sphere	<input type="checkbox"/>		<input type="checkbox"/>
Faster-than-light travel	<input type="checkbox"/>		<input type="checkbox"/>
Genetically engineered organism	<input type="checkbox"/>		<input type="checkbox"/>
Light sail	<input type="checkbox"/>		<input type="checkbox"/>
Matter transporter	<input type="checkbox"/>		<input type="checkbox"/>
Nanotechnology	<input type="checkbox"/>		<input type="checkbox"/>
Virtual reality	<input type="checkbox"/>		<input type="checkbox"/>
Wormhole	<input type="checkbox"/>		<input type="checkbox"/>

What is alternate history?

According to the *Encyclopedia of Science Fiction*, alternate history is “an account of Earth as it might have become in consequence of some hypothetical alteration in history.” AlternateHistory.com defines alternate history as “the exercise of looking at the past and asking ‘what if’? What if some major historical event had gone differently, and how could that have changed the world?”

Some alternate histories are built around one key event, or *point of divergence*, where their fictional timeline diverges from ours. Others propose a series of incremental changes over time. Still others present multiple alternate histories or parallel worlds that coexist and sometimes even interact with one another.

Alternate history allows writers to explore what might have happened if certain historical events had unfolded differently and to play with notions of truth, reality and imagination.

As you read alternate history, keep these essential questions in mind: How do the actions of individuals impact the historical record? How do systemic changes impact the historical record? How influential can one decision be in the historical landscape?

Sources: AlternateHistory.com, *Encyclopedia of Science Fiction*, USF Humanities Institute

Activity: Improving critical reading skills using science fiction

According to science fiction author and educator Julie E. Czerneda, “Literacy concerns the communicating of ideas from one mind to another, including component skills such as vocabulary, language structure, reading and writing to elicit comprehension. Critical thinking blends with literacy in the interpretation and extrapolation of ideas. There should be an understanding of source as well as context.”

As a class, choose one science fiction short story that you will all read. Once everybody has finished reading the story, ask your teacher to divide the class into six groups. Each group will analyze one aspect of the story using the questions below. Choose one member of each group to share the group’s responses with the class. Discuss the answers as a class.

GROUP 1 Based on this story, how would you describe the author? Think about age, gender, physical description, occupation (other than writing), education, attitude toward science and attitude toward people.

GROUP 2 1. What area of science is the author exploring in this story (biology, chemistry, physics, other)? How do you know?
2. What is the scientific premise of this story? Express the main idea in a “what if” statement.

GROUP 3 1. When do you think this story was written? What clues did you use to make this decision? What effect might this have had on the author’s approach to this story’s scientific premise?

2. Where do you think this story was written? What helped you decide? What effect might this have had on the author’s approach to this story’s scientific premise?



What point is the author trying to make about science in this story? Do you agree or disagree? Why?



1. How did the author present the scientific information needed as background to this story?

- an expert witness (a character who knows and talks about the science)
- narrative (description)
- assumption (assumed a certain level of scientific knowledge from readers)

2. If there was an “expert witness,” how did the author convince you that this character could be believed?



What was the role of science presented in this story? Think about:

- If any of the characters in the story were scientists, how were they portrayed?
- What role did science play in the problem that the characters faced in

the story?

- What role did science play in the resolution of that problem?
- What does the author have to say about the role of science to society (either today’s or that portrayed in the story)?

Source: Adapted from “Using Science Fiction to Improve Critical Reading Skills” in *No Limits: Developing Scientific Literacy Using Science Fiction* by Julie E. Czerneda

Alternate history (noun): a genre of fiction in which the author speculates on how the course of history might have been altered if a particular historical event had had a different outcome.



Introduction: 'Something Real'

World War II is one of the most popular points of divergence for authors to explore. Some classic alternate histories based around WWII include Philip K. Dick's *The Man in the High Castle*, in which Nazi Germany and Imperial Japan win World War II; Harry Turtledove's *In the Presence of Mine Enemies*, in which the U.S. does not enter the war, the Axis Powers win and Germany bombs the U.S. in the 1970s with nuclear weapons; and Jo Walton's *Small Change* series, in which the U.S. fails to provide aid to the U.K. to resist Germany and Britain makes peace with the Nazi Reich.

Set during the World War II era, Rick Wilber's novelette "Something Real" is the first of a series featuring real-life baseball player and spy Moe Berg.

In our world and our history, Berg was a major league catcher who became a spy for the Office of Strategic Services, or OSS, during World War II. The OSS, the predecessor of today's Central Intelligence Agency, was formed in 1942 to conduct clandestine operations abroad.

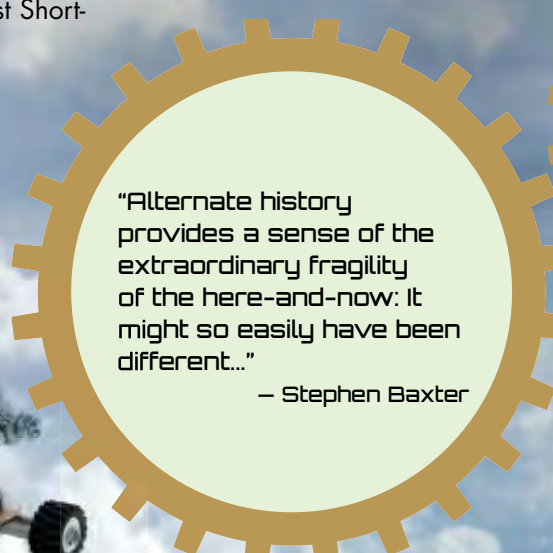
Former New York Yankees and Mets manager Casey Stengel once called Moe Berg "the strangest man ever to play baseball." Berg was a graduate of

Princeton University and Columbia Law School who spoke several European languages. He played major league baseball for 15 seasons until his baseball career ended in 1939.

In Wilber's alternate-history version of Berg, he is still playing baseball into the 1940s, when he is recruited by OSS head William J. "Wild Bill" Donovan to help stop the Nazis from developing the atom bomb.

"Something Real" first appeared in the April/May 2012 issue of *Asimov's Science Fiction*. In 2013, "Something Real" won the Sidewise Award for Best Short-Form Alternate History at the World Science Fiction convention in San Antonio.

Sources: Baseball-Reference.com, Central Intelligence Agency, Society for American Baseball Research, teachinghistory.org, What If? History Project



"Alternate history provides a sense of the extraordinary fragility of the here-and-now: It might so easily have been different..."

– Stephen Baxter

"The past is another country. They do things differently there."

– L.P. Hartley,
The Go-Between



Times extension activity

Once you have completed the activity on Page 4 with a science fiction story, complete the same activity with a feature story from the *Tampa Bay Times*. How does a feature story based on fact differ from your science fiction story? Are there any questions you asked about the science fiction story that do not apply to the feature story? Share your ideas with your class.

Something Real

by Rick Wilber



No 000001

Stumped by some science fiction jargon?

This might help:
techrepublic.com/blog/geekend/75-words-every-sci-fi-fan-should-know/

Science fiction has contributed hundreds of words to the English language that have now passed into everyday use. Terms such as robotics, zero-g, computer virus and cyberspace were all coined by science fiction writers. For a fascinating look at the vocabulary that has come from science fiction, visit the *Oxford English Dictionary's* Science Fiction Citations page at jessesword.com/sf.

July 22, 1943

Baseball is a game of constant disappointment. You swing and you mostly miss. You think it's an easy grounder and it bad hops you. You're called out at third trying to advance on a single. The pop foul to end the game drifts away from your glove as you reach over the rail. One thing after another, one game after another, one season after another; all of this in an endless progression of childish mediocrity.

Moe Berg, M.S., M.A, Ph.D., LL.D., was a well-educated man, a scholar, a man of great promise. Yet here he sat, a baseball player, in the dugout at Comiskey Park watching the rain fall and gather into puddles atop the tarp that covered the infield. The puddles rippled in the wind, tiny oceans getting wider by the second. It had been raining steadily for a half-hour and then moments ago there'd been a bright bolt of lightning and an immediate and massive crack of thunder. And now it was really pouring. Surely the game would be called in the next few minutes.

Moe had two hits on the day, a very nice opposite field homer to right, thank you very much, and a rare triple into the gap in left. The Sox were in front by six runs after three innings, but now none of that would matter; the would-be victory would disappear into the hiss of the rain and Moe's home run and triple wouldn't exist past today.

Perfect, just perfect. Like his season, like his whole career, like his life; the occasional good days were always washed away by a gray, cold rain. Now, instead of this one good day at the plate, there'd be a doubleheader tomorrow and he'd probably go 0 for the day or something close to that.

Every now and again it occurred to Moe that perhaps his father was right, perhaps it was time to retire from this child's game and get started on real life. Perhaps it was time to do something that mattered, something real.

December 12, 1944

Moe Berg looked around the room. The thick wool drapes, so purple as to be nearly black, were tied back to allow the sunshine to spill through the narrow, tall windows that marched along the left side of the small lecture hall at the Physics Institute at the Eidgenossische Technische Hochschule, the ETH.

Berg had heard just an hour ago that a few hundred miles away from this very spot Patton's Fifth Army was out of gas for the Shermans. This meant Von Rundstedt didn't need to worry about an Allied relief column and so the Nazi's Sixth SS Panzer under Dietrich was going to break through Bastogne at any moment and from there it would be easy going as the tanks headed toward the fuel depot in Antwerp. The war might go on for another year or two.

A narrow lectern stood at the front of the room. The seats were filled and an extra dozen people stood against the radiators at the back of the room. Paul Scherrer was there, of course, and nodded and smiled when he saw Berg. Marcus Fierz was there, too, and Gregor Wentzel, Wolfgang Pauli, Ernst Stueckelberg. And up in the front row, at the corner, Carl Friedrich von Weizsäcker.

Berg sat in the second row, where he was close enough to get the job done. He'd scored a marksman rating

with a service revolver at this kind of distance. That was one reason he was here.

His pal, Paul Scherrer, had managed to get him the invitation to this speech, listing him as an Italian physicist working with Fermi in Rome. Berg did look like he belonged: brown shoes, slacks, tweed jacket. He'd thought about smoking a pipe but decided he wouldn't look natural enough doing that; but otherwise he fit right in.

He'd earned a little credit, he hoped, by working his way into a couple of the interesting conversations on S-matrix theory that had been going on in the hallway outside before the door opened to the room. Berg liked the elegance of the math and had said so to several people, citing examples. They'd nodded and agreed, the several men then bouncing ideas off one another for a few minutes until the classroom door opened and, along with the others, Berg had walked in and taken a seat.

He crossed his right leg over the left and sat back, relaxed, as the last few stragglers came in, looking for a little space in which to join the others who stood at the back. The last to come through was a tall, very attractive woman.

Berg knew this woman. He was sure it was her; a real looker, tall, thin, black hair, red lips, wearing a very businesslike dress with padded shoulders and a vest. He wondered if there wasn't a gun hidden somewhere in all that fabric.

He'd seen her now several different times over the past couple of years. He was certain of it; he had a very good memory for such things. The first time, back in '41, she'd been sitting in the box seats, front row,

behind the home dugout in Comiskey as the White Sox did battle with the Browns on a Sunday in June. Berg had played first that day and had himself an RBI double and then scored on an Alex Irvine single. He'd tipped his cap to the few fans who were cheering after he'd crossed home and was heading toward the dugout. She'd smiled at him. He'd winked back and then had the batboy take a note up to her saying he was staying at the Piccadilly Hotel on Wabash, and he'd be pleased to celebrate the day's win by taking her out to dinner. He'd look for her at eight o'clock in the lobby. The chophouse had great steaks, but she didn't show.

The second time, a year later, he'd been in London, at the Claridge, working on Alsos. She'd been sitting in the lobby reading the *Times* and had lowered it to watch him walk by, smiling at him knowingly. He'd smiled back, but he was already late for the meeting with Carvelli to make the final arrangements for Italy and Fermi, and so he didn't have the time to do more than smile and nod. She'd nodded back, still smiling. An hour later, when he walked back out through the lobby, she was gone.

The next time, in Paris just a couple of months later, he felt a friendly tap on his shoulder then heard her say, "Bonjour, Monsieur Berg," as she'd walked by him one evening on the Pont Neuf, where he'd been leaning on the railing, watching a barge go by on the Seine below. He'd turned, embarrassed that he hadn't noticed her until after she'd touched him, but she was already walking away, half-turning to wave goodbye. He was waiting for a contact and couldn't leave the spot and had to watch her go. He felt dizzy and nauseous for a moment and when that passed he turned back toward the Seine and the same barge from before was somehow upstream and starting its way down again to go under the bridge, again, as he watched. There was no explaining that and he was afraid to mention it to anyone: they'd pull him out of there and bring him home as a head case, probably, and he didn't want that.

So he wasn't surprised to see her here, though she was a major complication, and Berg didn't like complications. He had a job to do here, dangerous work, and if she had been in Chicago, and London, and Paris, and now was here, then she was in on it somehow. One side? The other? Some other side completely? He didn't know. He didn't like not knowing.

The door at the side of the room opened again and in walked Werner Heisenberg. There was a smattering of polite applause from the gathered scientists. How do you greet a colleague

and friend, and one of the world's great minds, when he's brilliant but working for the Nazis? Heisenberg was in charge of Uranverein, the Uranium Club, which was to say, Hitler's A-bomb program.

But this wasn't about that: at least for everyone but Berg, so when Paul Scherrer walked to the podium to introduce Heisenberg, Berg sat back in his chair and made sure to look calm and relaxed. Time to listen. Very carefully.



September 5, 1943

A dismal season was winding down. Moe Berg had played first-base again and gone 0 for 5 as the Sox lost to the Yankees. Berg's contribution to the humiliation had been three strikeouts and an error on a groundball.

In the clubhouse after the game, Moe was contemplating what an 0-for-5 day can do to your psyche and your season and your career when you're in your thirties. He heard a throat clear behind him. He turned and it was a man dressed in trousers with a tight crease, a vest, an expensive coat and a bowtie; no hat, glasses.

"Mr. Berg? Moe?"

Berg shook his head. "I'm not speaking to the press, friend. I made that clear last week. No quotes, no off-the-record, nothing, till this slump is over. Got it?"

The man smiled, and was nice enough to not get into whether a .210 season batting average is still a "slump" or not. "I'm not with the press, Mr. Berg. My name is Huntington, Ellery Huntington. I'm here at the request of a man named William Donovan. He'd like to meet with you."

Berg frowned. "The Donovan who was a war hero in the Meuse-Argonne? And then the district attorney up in Buffalo? I believe I met him once, a few years ago. We shook hands and I autographed a ball for him."

"You have an excellent memory, Mr. Berg."

He did, in fact, have that excellent memory. And an IQ of 180. And a doctorate in classical languages from Princeton and a law degree from Yale. And yet he was playing baseball in Chicago and, mostly, going 0-for-the-day. So: "What would the district attorney and war hero want with a baseball player, Mr. Huntington?"

"Mr. Donovan is no longer a district attorney, Mr. Berg. He now works for the federal government. He's more interested in your language skills than your batting average."

Berg allowed himself a sad chuckle. "That's a good thing. Have you seen my batting average?"

Huntington smiled back. "Mr. Donovan

has looked at those photos you took in Japan during the Sox tour back in '37. Those snaps are very good. And he knows you speak French and German. He understands that you are something of a science buff, as well."

"And Italian. And Spanish. And Hebrew. And a few more. And I read a lot, Mr. Huntington. Science is one of the



things I read, along with the sports pages in the newspapers."

"And the front pages?"

"Yes, and the front pages."

"We felt certain of that, Mr. Berg. And we feel certain, too, about your patriotism. Mr. Donovan would like to talk to you about that, about your patriotism. He knows you've tried to enlist, but the Army wouldn't take you."

"Or the Navy, Mr. Huntington. They don't like the shape of my feet. But if your Mr. Donovan has found a way I can take part, I'm all for it. Do I have time to take a shower and comb my hair?"

Huntington smiled again, and nodded. "Of course, Mr. Berg, take your time. And then we'll head over to our hotel

and you and Mr. Donovan can have that conversation. Does that sound all right?"

Moe thought about his slump. The season wasn't young anymore and neither was he. And there were guys fighting and dying in Europe and he'd been thinking a lot about how he ought to be involved in that, flat feet or not.

He looked up at Huntington. "Give me ten minutes."

And that was all it took. Ten minutes, a taxi ride and a five-minute conversation with Wild Bill Donovan.

December 12, 1944

Berg watched Heisenberg smile weakly. He spoke in German: "Hello, everyone, it is good to be here, and to see so many of my friends and colleagues from better days. May those days return soon."

He paused, smiled again slightly. "Please, friends, colleagues: Let us step away from the war for just this brief time and focus our attention on the matter at hand, scattering-matrix maths. I will gladly take questions on that afterward, but outside the scope of that discussion I can take no questions. I am sure you understand."

Berg understood. The Gestapo was here in one guise or another; and there were others in the room, too, no doubt, who would report back to Berlin on what Professor Heisenberg had said, starting with that weasel von Weizsäcker. The Professor was smart enough to stay out of trouble and focus on S-matrix theory, as advertised.



Learning with the *Times*: Jargon

"Jargon" is defined as "special words or expressions that are used by a particular profession or group and are difficult for others to understand." For example, the fields of law, medicine and sports are full of jargon.

When you read science fiction, you often come up against scientific, technical or science-fictional jargon. As the *Encyclopedia of Science Fiction* notes, certain concepts have become so common in science fiction that they tend to be used without explanation by genre authors. This can be challenging for readers new to the genre!

Most new vocabulary words are learned from context clues or good old-fashioned dictionary work. While you read this publication, be sure to highlight or circle words you don't know. Try to figure out the words' meanings by looking for clues in the sentences around them. Write down your best guess, and then look up the words in a dictionary. As a group activity, make a list of the words your classmates identified and see which ones stumped the class. Next, use these words for a news scavenger hunt and see if you can find these words in the *Tampa Bay Times*. The group that finds the most words wins the game.

Trouble was, as the afternoon lecture wore on, when it came to S-matrix theory, or the scattering matrix as Herr Professor called it, Heisenberg didn't seem to have anything new to say.

Berg had done his homework, reading up on John Archibald Weaver's paper from 1937, which coined the "scattering matrix" term as it described coefficients that connected the asymptotic behavior of an arbitrary particular solution with the set of solutions of a standard form. Heisenberg had taken it farther; using the S-matrix idea to mathematically pick out the most important features of the theory, the ones that he tried to prove wouldn't change over time.

It was brilliant work and Berg was interested in it. But the sunlit room was warm with everyone packed in, even with the radiators shut off as Switzerland dealt with its coal shortage. And despite the months of preparation, despite the lives that had been put at risk to get him here: despite all of that Moe Berg began to drift off, his eyelids growing heavy as he jerked awake sharply once, cursing himself for his foolishness, and then again, before resorting to pinching, hard, the skin between his right thumb and the forefinger.

That worked, and he was focused again on the S-matrix, at least long enough to get to the question period, where he might learn what he needed to know. Was Heisenberg and his team on the right track for an atom bomb? Would the Germans get the bomb before the Allies did? If he thought that was the case, Berg would excuse himself, go to the men's room and get into a stall, unbutton his pants and drop them, pull the Beretta loose from where it was taped to the thigh, re-button the trousers and then walk back into the room, the Beretta in his pocket. There, with no hesitation, before anyone could act to stop him, he would kill Werner Heisenberg, cut off the head of the snake that was the great bomb. A lot of lives, hundreds of thou-

sands of them, maybe millions, would depend on Berg's aim.

He was awake now, and sharp, thinking it through. Ten minutes more, maybe fifteen, and the moment might come as the speech ended and the questions started.

Then there was a quick rap at the lecture room door and everyone watched as the door opened and a man in a suit, a blond German missing his right arm so he was, no doubt, a veteran of one front or another who'd found something useful to do for the local Gestapo or the embassy, walked in.

They were all watching, thirty-six of the brightest minds in European physics, as the man walked over and handed Heisenberg a note then clicked his heels officiously, spun around and walked briskly back out the door.

Heisenberg was expressionless, the blank look on his face something he must have mastered after years in the service of Hitler. "Excuse me, please," he said and turned his back to the room to read the note.

Did his shoulders sag a bit as he finished? Berg thought maybe so, but Heisenberg was smiling thinly as he turned back to face his audience.

"Colleagues, I have received information to the effect that Baron von Rundstedt's Sixth Panzer has broken through at Bastogne and is racing toward Antwerp. I have been asked to relay this information to you. There is more I would like to say about this turn of events, but this is, of course, neither the time nor the place."

And he turned his back to the room again and walked over to the chalkboard. There was no "Heil Hitler." Instead, he started furiously writing formulae for the S-matrix discussion, scribbling on the chalkboard in Zurich while Von Rundstedt's tanks rumbled toward Antwerp and the oil tanks filled with fuel that sat there, nearly defenseless, ready to be milked. Now the war might go on

for years, giving Germany time to finish a bomb, and build the rockets to deliver it. Well, all the more reason to listen closely for some hint. Any hint.

Heisenberg finished and put the chalk onto the narrow tray at the bottom of the board before walking back to the podium and asking for questions. This, Berg hoped, would tell the tale.



Werner Heisenberg

But it didn't. Paul Scherrer wanted to know about Ads/CFT correspondence and Heisenberg went into a long, rambling response that amounted to "We'd all like to know the answer to that." Then Wentzel got into a question about the analyticity of the first, and Heisenberg went back to the chalkboard to erase the previous formulae and put up some new ones, talking as he jotted them down, explaining things. There were lots of nods and murmurs.

There was, ultimately, no hint of anything else, anything that mattered. Berg was left, in the end, to wonder if Von Rundstedt's success was enough on its own to require the death of Heisenberg? Maybe, just maybe.

When the questions ended Heisenberg looked tired but relieved. He thanked everyone and then Scherrer returned to the podium and thanked them all for coming. There would be a reception at 7 p.m. at Scherrer's house tonight, #27 Versterstrasse, in District 2 on the west side of the lake. They were all invited.

The audience stood and gave Heisenberg another polite round of applause as he exited, and then, slowly, chatting with one another all the while, started heading for the one open door. It was a slow process.

Berg was lost in thought as he ambled slowly in line. He'd heard nothing that had given him a definitive reason to pull the trigger; but the question had changed, really, and now he had to factor in a longer war. He needed a little time to think it through. Heisenberg would be at Scherrer's party later tonight,

and then another reception tomorrow at the German embassy. Heisenberg liked long, contemplative walks and he'd be coming and going on foot to these social occasions. Berg had two opportunities to kill him, then. The first one was tonight, probably in Backer Park on Hohlstrasse, which stood between the Baur au Lac Hotel and Scherrer's home. It would be dark. It would be very easy.

And if not there and then, tomorrow would do, but that was trickier, in the daylight. That would have to be a sidewalk encounter, one shot, very clean, and then try to disappear into the crowd.

But, first, in either case he had to decide, and he needed a little time to puzzle it through. It would be good to talk to Heisenberg first somehow, perhaps at tonight's party, get a feel for things, all of it very sociable. And then, maybe, kill him. Berg had never killed a man, but that was what most of the training had been for. That moment. Pull the trigger. Save the world. Maybe.

He was just out the door and into the hallways when he felt a touch on his left shoulder, heard a deep, warm female voice speaking very quietly in German: "Yes, you must decide, Moe – may I call you Moe? – and very soon. So much hangs in the balance, yes?"

He turned to look at her. She was nearly his height and even more attractive up close, perhaps in her mid-thirties, black hair, not a lot of makeup, some real strength of character showing in how she looked right back at him, assessing him just as he did the same to her.

He steered them both out of the queue and down a side hallway. No use pretending: "I saw you in Chicago. And then in London and Paris. And now here. What gives?"

She smiled. "And the answer better be a good one or you'll use that Beretta on me, right, Moe? But only after you've dropped your pants and untaped it from your leg." She laughed. "Sometimes you do better, you know, Moe. Sometimes you have untaped it and you're ready to go."



Enrico Fermi

So she knew about the Beretta he carried.

They walked back into the main hall and then, quietly, with everyone else, out of the building and onto the Zweillerstrasse. She chatted briefly about the weather; colder than last year, no?

Berg could be patient. She knew way too much, but he was about to find things out, and there was nothing he liked better than learning.

Finally, at the far end of the Hottingen Bridge, near the dark park, they'd left the crowd behind and, alone, they stopped to lean on the railing and look at the cold water below, ice just starting to form on the rocks that rose above the stream.

"Moe," she said, "I work for a firm that you don't know anything about yet. But in a few hours I'm going to tell you about our firm. You won't believe me, of course, but then I'll prove it to you. I'll also prove to you that Werner Heisenberg has to die, and soon.

"Tonight, after the little party at Scherrer's house, you must walk with Heisenberg through the park, chatting about the S-matrix and, perhaps, the weather. There in the park, at a spot I will take you by in a few minutes, you must use your Beretta to shoot Heisenberg. It must take three shots to make certain he is dead. The first shot has to be above the left ear. The second, as he begins to crumple, has to be to the back of the head. The third, as he lies there, face up, must be to the forehead. You will be wearing your gloves in the cold, so there will be no need to wipe the weapon. You will simply toss it into the nearby bushes and walk away."

Berg stared at her for a few moments. He wished he'd put the Beretta in his pocket. "You know a lot. Too much, in fact."

"I do know a lot, Moe. I know everything in this line, in fact, from this point forward. You, me, Heisenberg, the Bomb, lives saved and lives lost. It's all right there in front of me, like reading a newspaper, as long as you stay here. You like reading the newspaper, don't you, Moe?"

He did, in fact, like reading the newspaper, liked it so much he bought two or three each day and read them slowly over coffee in the morning.

She stared at him, dead serious.

"Problem is, Moe, there are a lot of pages in those newspapers, and different things are happening on different pages. It's all on the same day, it's all the news that's fit to print, you know? But certain things have to go in a certain order, Moe, or I won't be able to help."

He moved to her, pressed himself against her, reaching down to put his right hand over her left one on the bridge railing. A moment of dizziness and he thought he might go to his knees, but he steadied. Then he thought he could kill

her now if he had to. Knock her back over the railing and into the water. Get the Beretta out as she lay there. Walk down, fire once or twice, then walk away.

She smiled, pressed back with her hips, looked at him closely. "Look up, Moe, and toward the south, back across the bridge."

He stared at her.

"It's all right, Moe. You're the one with the gun. Me, I'm just one of the girls. Go ahead, look up."

So he did, and saw, in the night sky, a half-dozen planes of some kind, nearly silent, swift, rushing over Zurich.

"Whose are they?"



"German fighters, Moe. Those new jet fighters."

"Yeah. So?"

"You know, Moe, you know very well. Those fighters are better than anything the Allies have. And there's a jet bomber that's in trials right now. A month, maybe less, and it will be in production. It has a range of six thousand miles, Moe. You know what that means."

He did know. "How'd you know those fighters would be there?" She was, perhaps, a Nazi, a double-agent of some kind.

"I've seen them before, Moe. Several times. And I've seen the bomber in action, too. I've seen it carry a super-bomb, Moe. For six-thousand miles."

It was ridiculous, sure. But those fighters. And the stuff she seemed to know. "Look, I don't get it. Who are you?"

"I'm someone like you, Moe. Someone who believes in a world that can be better than this one. Someone willing to do what I must to stop this before it ruins everything."

He pushed against her, harder, squeezed that hand against the railing. He felt her hips push back against him.

She smiled. "There's a lot I can't tell you yet, Moe. There's a lot you're going to have to find out for yourself. But we're on the same side, you and me, and I

can tell you this. There was a freighter in Lorient two months ago, the *Bremen*."

"I know about the *Bremen* and the deuterium."

"But you've been told there was a commando raid and the *Bremen* was sunk, Moe."

How the heck? "Yeah," he admitted, "that's what I've been told. So no heavy water means no plutonium means no super-bomb, at least not anytime soon. It would take another year for them to isolate more."

He paused. "But if this Von Rundstedt thing is true and there's more time to isolate more deuterium..."

Now she wasn't smiling. She pushed

him back off her and he let it happen, releasing her hand from the bridge rail, pulling back. "It's worse than that, Moe. They'd offloaded more than twenty tons of the heavy water before the raid. The Germans were happy the *Bremen* was sunk, it let the Allies think the Uranverein can't make the super-bomb. But the Allies are wrong, Moe. Terribly wrong."

"So they can make enough plutonium for a bomb," he said, flatly.

"Yes. Maybe two bombs, Moe. Two of them! Maybe the first for London, and the second for who knows where. New York?"

"It's too late already?" He believed her now, but if this were true why kill Heisenberg?

"Certain matters are at a critical point, Moe. At the moment, the bomb they are building is too big to be useful: it's the size of a boxcar, maybe bigger. And to keep it hidden it's been built in caves in Zugspitze. You know where that is, in Bavaria."

She said that with certainty. He nodded.

"Heisenberg is personally working on ways around the problem, Moe. He can't be allowed to succeed."

Did Heisenberg even want to succeed? That was really the question, thought Berg, but he didn't voice it.

"And if I kill Heisenberg this will end

Activity: World building



Build a world for a science fiction short story you would like to write. Some of the questions to consider:

Base your world on an event you read about in the *Tampa Bay Times*.

What are the characteristics of your world's planet? What is its gravity like? How far is it from its sun? What is its tilt?

What is the geography like?

What is the climate like?

What is the biology (flora and fauna)?

Who are the inhabitants? Are they sentient? Are they human? If not, what are they like biologically? How many races are there? How many genders?

What effect have climate and geography had on the evolutionary development of your creatures?

What is your world's history?

What level of technology is there?

Give a brief presentation on your world to your class.

World-building links:
amazingstoriesmag.com/2013/12/art-science-world-building-tools-need-make-believable-world

sfwa.org/2009/08/fantasy-worldbuilding-questions

Sources: Adapted from "World-Building Lesson Plan" by Ben Cartwright on AboutSF.com.

if? The bomb won't be used? The Nazis will finally lose this war?"

"It will slow things down, Moe. And in the world as it is right now, right here, there's a chance. If Rommel doesn't take Cairo, and if Patton wheels west and turns for Amsterdam. Yes, there's a chance that might end it here. But for you, Moe, no, this is not the end of it."

He looked at her. "I don't know what you mean. What's next?"

"I have to go now, Moe. See," she said, pointing at nothing, a park bench maybe over at the edge of the grass, "there's a door. I have a deadline and I can't possibly be late."

She turned to face him, reached up with both hands to hold his face, brought him to her, so close, so very close.

"You're going to like this, Moe. You're going to do important work." And then she finally kissed him; hard and long, before pulling away and turning to leave him.

"Sure," he said to her back as her heels clicked against the stone path.

"Sure, it's important work." He raised his voice. "Hey, what the heck does that mean? And who the heck are you? I don't even know your name."

She stopped, turned around. "You'll know everything sometime soon, Moe, I promise you. You're important. Know that, Moe Berg. Know that you're important."

"I'll see you again?"

"Oh, yes, in a way. After all, we have a lot to do, you and I."

She turned back again and stepped off the stone path to walk through the brown, winter grass and into the darkness of the park and then she wasn't there.

Berg undid his belt and reached down to his leg to pull free the Beretta. There was a brief moment of pain as the athletic tape came free and then he had the gun and was buttoning up again and

putting it into his pocket. The smart thing to do was get to Scherrer's house and get back on the job: find Heisenberg, talk to the man, make a decision.



But where had that woman gone? He wanted to know. He needed to know, in fact, and so he pulled the Beretta back out of his pocket and began walking after her: across the cold, winter grass and along the route he'd seen her take through some bushes and next to that plane tree.

There was a tingle, that dizziness, that moment of nausea, a sense of something – electricity? – in the air, but nothing else. She was gone. No footprints in the grass, no way to guess how she'd gone.

It was cloudy, dark, with snow starting to fall. But Scherrer's house had to be that way, through this little park and down onto the Seestrasse and on toward the lake. Hadn't the sky been clear a moment ago? He thought maybe so. Then he pulled up his coat collar, shoved the Beretta back into the coat pocket, and started walking.

August 12, 1944

Moe Berg and his two pals, Enrico Fermi and Paul Scherrer, sat in slat wooden folding chairs at a very shaky wooden table at the Café Maggiore in the Swiss village of Dinella. About two-hundred meters away, to the west, was the border with Italy, where Moe and Enrico had left their bikes. The act of their leaving the bikes behind had pleased both the Italian Carabinieri and the Swiss Border Guards, who had each barely glanced at Fermi's and Berg's passport before waving them through. It was hard to believe there was a war on.

Berg smiled a bit and allowed himself a moment's satisfaction. Here they were, all three with beer steins in front of them and Scherrer smoking a cigarette, calm and serene as they could be, looking out over Lake Maggiore with Lucarno visible in the distance across the lake. Blue skies and sunshine; a light, cool breeze off the lake to cut the summer heat as the three men – two of them among the world's finest physicists and one of them a mediocre baseball player – discussed how to save the world.

They were the only patrons at the little café, and the owner who was the waiter and also the cook had brought them their beer and gone in to make their sandwiches, so they felt free to talk almost openly.

"Thank you both for coming. I know it was a difficult journey. But I have news of a certain opportunity."

"Something involving Heisenberg?" Moe asked. This must be good or Scherrer wouldn't have gone to all this trouble.

"Yes, my old friend, Werner. He's being allowed to visit with us in a few months."

"You're joking," said Fermi. "Germany would never allow such a thing. Hitler himself would have to know and he would never allow Werner to travel."

"I thought so myself, Enrico, for the longest time. But then one of my students, a brilliant young woman, of all things, pointed out that we could play to Hitler's vanity. And so we concocted a seminar series and asked Werner to come be our first speaker at the ETH."

"And this worked?" Berg asked, incredulous.

Scherrer smiled. "I brought you something to see," he said as he took a final drag on his cigarette, stubbed it out in the clay ashtray, and reached into the front inside pocket of his jacket.

For a second, Berg thought Scherrer might be reaching for a weapon; but that was silly, they were all friends here, right? And, indeed, it was simply a letter, still in its envelope, though that had been opened.

Scherrer handed it to Berg, said, "Open it, my friend. It's from Werner Heisenberg."

Well, well. Berg pulled the cut top of the envelope wide and pulled out the letter. It was a letter, written in ink, in a very nice hand. In German, of course.

Berg read it aloud, in low tones, but loud enough that Fermi could hear.

"My dear Paul,

"I hope this finds you well, and safe and healthy, in your comfortable surroundings in Zurich.

"Life here is sometimes difficult, as you might imagine, with the war dragging on and the occasional worries over Allied bombing. We are safe enough here at

Activity: Investigating the Science behind Science Fiction

The "science" in science fiction runs the gamut from realistic, near-future extrapolation of current technology to imaginative speculation about scientific and technological developments not considered possible by today's scientists. Fictional and nonfictional details often intersect in order to draw the reader in, advance the plot or increase the verisimilitude of the story.

Read one of the science fiction short stories listed below, or another science fiction story of your choice. As you read, make a list of science, technology and engineering words and phrases that appear in the story. How does this terminology communicate details about the science that is presented in the text? How do the scientific details add to the fictional scenario and the plot of the story?



Next, choose one scientific artifact or concept that appears in the story. Research its background and find five to 10 science facts to support or dispute the story's science. Record this information on the data collection sheet located at readwritethink.org/files/resources/lesson_images/lesson927/SciFiResearchForm.pdf. Be sure to note your sources.

Stories:

Gregory Benford, "Backscatter": tor.com/stories/2013/04/backscatter

David Brin, "The Giving Plague": davidbrin.com/givingplague

Cory Doctorow, "Printcrime": craphound.com/overclocked/download

Robert Reed, "Mystic Falls": clarkesworldmagazine.com/reed_11_13/

Source: Adapted from "Finding the Science behind Science Fiction through Paired Readings" by Lisa Storm Fink on ReadWriteThink.org.

the moment, away from anything that might be thought a worthy target of Mr. Churchill's or Mr. Truman's aircraft, but I do worry over the family's safety. We all must make our sacrifices for the Fatherland, but I would happily risk my own life to save those of my wife and children. I am grateful that Herr Hitler has, twice now, allowed me to keep my family with me as we have moved our facilities from place to place to find a secure facility where we can work.

"It is grueling work, as you must know, and demands a great deal of my thought and energy. But I have, from time to time, done some interesting maths to advance the S-matrix work and so I am delighted to report to you that not only do I have something interesting to say at your little gathering, but Herr Hitler has personally endorsed my speaking to your group in Zurich in December.

"So I thank you most deeply for the invitation and am happy to report that I shall be able to attend. I am looking forward to seeing you and all my old friends in Switzerland at the Eidgenossische Technische Hochschule where, I am sure, much interesting work has been done even during these unfortunate times. I look forward to hearing from you and your colleagues and I hope that you will find what I have to say of some small interest.

"I will see you in a few months, my friend, and I will look forward to that meeting with the greatest anticipation."

Berg looked up. "And he signs it, 'Werner.'"

He sat back and looked at Fermi, who was shaking his head in disbelief, and then they both looked at Scherrer, who was smiling broadly.

"How did you do this, Paul?" Berg wanted to know. "Heisenberg? In Zurich? In the middle of a war? How did you even manage to contact him to make such a request?"

"Paul," Fermi added, leaning over the table, "You know Werner every bit as well as I do. You must know what this means. He must have intended the implications of this letter. Surely you agree?"

Scherrer's smiled faded. "Yes, Enrico, of course. And so we must take advantage of this opportunity, as Werner no doubt would wish us to do."

"Take advantage?" asked Berg. "He's got a target on his back, gentlemen, and it's been there since the start of the war. You think he means to offer himself up at this get-together you have planned? Why would he do such a thing?"

"To tell us, to make it clear to us, that Germany does not have the super-bomb and will not build it. That could be Werner's motive," said Fermi. He leaned forward, his hands open, expressive.

"Spero che sia così." I hope it is so.

Berg nodded. "Yes, that might be it."

There was a rumbling in the distance, the low sound of engines, several of them working in unison, slowly drawing closer. "That would make sense if he's doing what you two think he is doing, finding ways to stall the creation of that super-bomb, pushing the development of it in the wrong direction."



The rumbling grew closer, the vibrations from it rattling the crockery on the table, the plates vibrating, the silverware jiggling in place. A tank column rumbling down the road? That's what it sounded like.

The proprietor, Gianluca, came out and looked up, pointed. "Once a day lately, three in the afternoon, like clockwork."

They looked up and a bulbous nose appeared over the hill behind them and then grew to include the entire zeppelin, flying low, an enormous thing, a giant when seen this close. It was the *Hindenburg*.

Safely interned in neutral Switzerland and renamed the *Wilhelm Tell*, she was still the pride of the German people, the mighty airship that had found safety here on the very day the Americans and English declared war on Germany.

My god, it was an enormous airship. Berg knew the basics; it was capable of carrying a payload of half-a-million pounds, double that if one wanted to risk the dangers of using hydrogen instead of helium. It was more than eight hundred feet long, had a cruising speed of seventy-five miles per hour and a range of an incredible ten-thousand miles.

He wasn't surprised to see her flying so low, the *Hindenburg* was known for flying just a few hundred feet up. It made for a great view for the passengers and impressed the hell out of those on the ground as they watched the huge thing go by with its giant swastikas on the side and on the tail.

Or at least that's how it had been for her before the war. Since she'd been interned in neutral Switzerland, she no longer carried the Nazi banner. Now she

was flying with giant red crosses on her, the deal with Hitler being that the Swiss would let her fly, and with her German crew, as long as the paint job was Swiss.

By god, she was really something. He gaped, along with Fermi and Scherrer, as she passed overhead and made her way across the lake toward Lucarno.

And then, once she was gone, the three of them got down to making some plans for December in Zurich.

Before the afternoon ended and Moe and Enrico wandered back into the Italian Republic on their bicycles, the three of them had an idea of what to do. And, more importantly, how to do it.

December 12, 1944

Paul Scherrer's home was a lakefront, two-story chalet, across the Seestrasse from Rieterpark, with its woods and playing fields. Berg had spent a couple of weeks with Scherrer and his family back in mid-October and came to very much like Ilse, Scherrer's wife and the real master of the house. He also liked the three children, all girls ranging from eight to fourteen. By the end of those two weeks he'd put the family onto his mental list of people he would have to save from Hitler's anger if push came to shove on this Heisenberg thing. Fermi and his family were already on the list so, with a deep internal smile, Berg was starting to think of the list as his Phavorite Physicists list.

Heisenberg was not a phavorite.

Moe walked up the long driveway. It was snowing hard now, an inch or two on the ground already and a lot more to come, looked like. There were half-a-dozen cars parked on the grass to the side, showing off Zurich's relative wealth even during this war. A couple of Bugattis and a Mercedes spoke to the presence of some local politicians and leading businessmen. Some lesser

Renaults and Citroens probably belonged to professors.

Berg was about to knock on the door when Jeanine, the eight-year-old, beat him to it. "Mr. Berg!" she said with delight, and came to him for a hug. She was the most delightful of the three charming daughters, so "How wonderful to see you, Jeanine," he said, hugging her back. "How are your sisters? And your mother?"

She laughed. "You're so silly, Mr. Berg. Amelie is fine, but she's the only sister I have and she's nearly eleven, so there's no talking with her, really. And Mother is fine, too. And Father. They're so happy you're here, and so am I!"

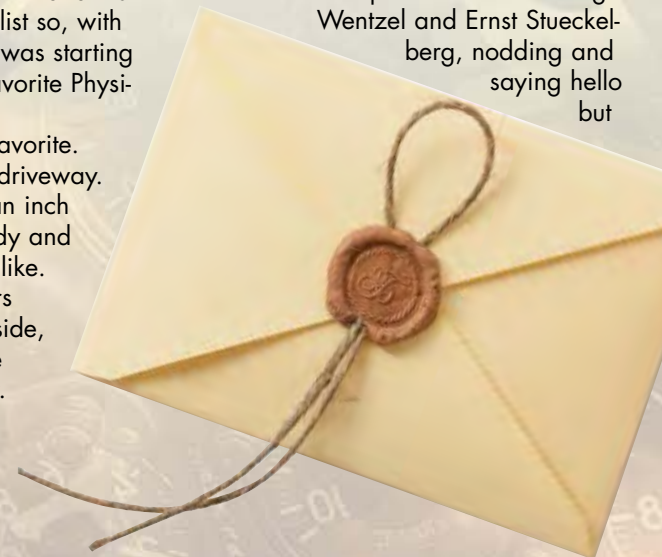
She prattled on a little longer, taking him by the hand and leading him into the house, presumably to meet the hosts before she would let go of him. Well, that was fine, but what was this thing about having just one sister? He knew, firmly, there were three. Was his memory wrong? He'd seen his father slip away into dementia and he didn't like considering the implications of these doubts about himself. Just nerves, perhaps, and that, he decided, he could handle.

Firmly in tow behind Jeanine, he rounded a corner and there was Paul Scherrer and beside him, Ilse. Hellos and handshakes and hugs and polite kisses on the cheek all around and soon Jeanine was back with her sister and the adults were talking, mostly about the weather and the children, since most topics of interest were off-limits in a group like this, where there was certainly a Gestapo agent or two in the crowd, along with several admitted Nazi sympathizers like Weizsäcker.

"By the way, our mutual friend is here," was all Scherrer had to say after the small talk ended. "I do believe he's out in the back room, the one with the view of the lake."

Berg nodded, shook his friend's hand again, very knowingly, since they both knew it might be the last time they'd see each other, and then left the Scherrers

and walked past the likes of Gregor Wentzel and Ernst Stueckelberg, nodding and saying hello but



moving, moving toward the far room, the one with the view of the lake, the one with Heisenberg.

August 23, 1943

Wild Bill Donovan was setting up a special kind of operation, a unit filled with people who would risk their lives for their country, working behind enemy lines, finding out things, causing trouble for the enemy.

What he had in mind for Moe Berg was work in Europe, dangerous work. He needed someone who could speak all those languages, someone with nerve, someone smart, someone with some physical skills and the willingness to do what had to be done. Was Moe Berg that man, Donovan wanted to know?

Sure he was. Sign me up, he said to Donovan after a half-hour conversation. And when do I start?

There was, after all, a war going on. A hell of a war, what with Rommel revitalized in North Africa, taking back Tobruk and knocking on the door of Cairo, and Germany launching those damn rockets at London, and the Luftwaffe's new jet aircraft regaining superiority over Europe. Things were teetering. There were a lot of people, important people, saying it was time for an armistice with Hitler so America could concentrate on the Japanese, where the war was going better since the cakewalk at Tinian.

Wild Bill was not interested in talking peace with Hitler. Wild Bill knew what most Americans didn't: The Nazis were working on a super-bomb, and with jets and rockets and those new, larger U-boats they had a way to deliver one if they got the bomb built. If that happened, the Japanese wouldn't matter, Oppy told him time and again. If the Germans got the bomb first, nothing mattered. The war was over and the good guys lost.

Moe Berg, spy, and the key to it all, really, found himself on the fast track.

December 12, 1944

Moe got caught in two brief conversations as he worked his way toward the back room until he got to the double doors at the back of the chalet that opened up to the added-on back room. One of the doors was open and he walked through it and there, at the window at the back of the room, the window with the great view of Lake Zurich, was Werner Heisenberg, chatting with several people, smiling, nodding his head.

One of those people was a woman. Was the woman, Moe's mysterious friend from the past two years and the conversation from a couple of hours ago. It was her, he was sure of it, though she was dressed differently now, more elegant and less business, her hair piled up on top and a smart, little hat on top of that.

There were long earrings and red lipstick and padded shoulders. Puttin' on the Ritz.

He walked toward the little group. The woman saw him coming, smiled, looked at her watch. "Werner, dear, here is the man I was telling you about – the Italian physicist who worked with Fermi – Mario Antonacci."



Then she turned to Moe, offered her hand. "So good to see you, Mario. I'm so happy you were able to come."

Heisenberg reached out to take Moe's hand in his own. "It is a great pleasure, Herr Professor. As you must know, I am a good friend and a great admirer of your colleague, Professor Fermi. I had hoped he might be able to attend here this weekend."

"I was with him just a few weeks ago, Professor," Moe was able to say truthfully. "He had hoped to attend, but with the political situation as it is..." Moe shrugged.

Heisenberg nodded. "Of course, Professor. These are difficult times for us all."

Berg felt a hand on his shoulder, that flash of stomach-churning disorientation. It was the woman, and she was putting a hand on Heisenberg's shoulder, as well. "Boys," she said with a little laugh, "time enough for small talk later. Right now I was hoping to take the two of you outside." She took a look at her watch again. "I'm told we're going to see quite a sight in the next few minutes. A very special visit from an old friend of mine. Would you come with me, both of you, please?"

There was nothing to do but follow, as the woman took them both by the hand and walked toward the doors that led out to the back yard of the chalet, where a path led to a wooden walkway that, in turn, led out to a dock. No boats tied up this time of year, but no ice on the water yet, either.

The night was warm for December, well above freezing. They walked out onto the dock, the three of them, alone, the house behind them dimly lit, quiet, as the Scherers prepared for bed and the servants

finished cleaning up the remnants of the small dinner party. There was a distant rumble, a rhythmic beat to it, a deep cadence that Berg remembered from a few months ago. Engines. Big twelve-hundred-horsepower Daimler-Benz diesels, four of them, sixteen-cylinder behemoths, driving the great beast forward.

The *Hindenburg*. The *Wilhelm Tell*.

The great dark shadow of it emerged from the east, over the alpine ridges to the back of the lake. It came toward them, slowing, slowing and then, no more than one-hundred feet above them, a huge thing nearly three football fields long, easing to a stop, the roar of the engines quieting to an idle. Directly above the three of them was the *Fuhrer-gondel*, the control car, where the crew did its work. The passengers and the cargo were inside the envelope.

"She's magnificent, isn't she, Moe?" the woman asked. "I told you that you'd see her again."

"You never mentioned the *Hindenburg*," Moe said, and took his eyes off the huge shape above him and turned to look at the woman.

She was holding a gun. Moe's gun, the Beretta. He reached into this pocket and wasn't surprised to find it wasn't there.

"You know this has to be, Mr. Berg," said Heisenberg, walking over to stand next to her, admitting he knew who Moe really was. "Tomorrow morning, at the Eagle's Nest, Herr Hitler and the others – Göring, Hess, Von Braun, Goebbels, Hausser, Messerschmitt, Von Ribbentrop, Himmler, and many more – will be gathered to meet with me as I return from Zurich aboard the *Hindenburg*."

"Hitler has an announcement for them. He plans to tell them that the super-bomb is ready, and that Messerschmitt has a plane that can deliver it. He plans to introduce me to them and I will explain how the bomb works, and the damage it will do to London, and how we are building three more of these super-bombs, these atomic bombs."

"So killing you now is too late. I get

that," said Berg.

"No, Moe," the woman said. "In about five minutes they're going to lower a ladder down from that control car. We're going to help Herr Heisenberg get on that ladder and climb up to the control car. Then we're going to watch the *Hindenburg* leave, heading for the border, and then the Eagle's Nest."

"We're not going to stop him?"

Heisenberg shrugged. "No, I don't think so, Mr. Berg. There are no bombs made of the size the Fuhrer thinks they are. There is only one bomb – we have built that – and it's enormous. It weights nearly twenty of your tons, and it's twice the size of a train car. There is no way for a plane or a rocket to deliver such a weapon."

"That bomb is in the *Hindenburg*? It's in there right now?"

The woman and Heisenberg both nodded.

There was a creak from just above, and then a bang as a hatch slammed open and then was tied off. A ladder started inching down from that hatch. The great hulk of the zeppelin was only twenty feet above them now, surreal in its enormity, silver in the darkness, only the single flashlight coming from the control car illuminating the ladder, aluminum, as it cranked slowly down.

"And you're taking it to the Eagle's Nest?"

"Yes, Moe, he is. That's a crew of volunteers in there. The super-bomb is in the hold, the gas cells filled with hydrogen for extra lift. Tomorrow, before noon, they will reach the Eagle's Nest and tie off at the landing tower. Professor Heisenberg will exit the zeppelin. Herr Hitler and the others will be at the landing pad to meet the creator of the great bomb and then they expect to board the *Hindenburg* and see more of the bombs, brought to them safely through neutral Switzerland."

"Instead..."

"Instead, the trigger will spring and the enriched uranium will reach critical mass, and this war will come to an end."

"My god."

The ladder touched down on the wooden dock. Werner Heisenberg took Moe Berg's hand to steady himself and then, with Berg's help, got his right foot onto the first rung of the ladder. Berg held the ladder steady and the woman came over to help. Their hands met on the ladder as Heisenberg started climbing and Moe felt that now familiar nausea, the moment of disorientation. He knew to take a look toward the house. The lights were back on, a crowd again visible through the curtains. Did anyone miss Heisenberg? Was there another Heisenberg in there? Was this Heisenberg still here?

Moe looked up and Heisenberg was already at the control car, hands reaching

down to help him through the hatchway.

The woman was gone. Moe's Beretta was back in his pocket and he knew that here, now, it had never been taken.

Someone was shouting. Moe felt the ladder being yanked upward, out of his hands, up into the belly of the beast. That was all right. He was sure of it, he was dead certain that it was all right, what Heisenberg had in mind.

The shouts were closer, footsteps crunching through the few inches of snow that now covered the ground. The lake was frozen. It was very cold.

Two men were coming, running, one ahead of the other. The first was Weizsäcker, waving a pistol, a Luger, shouting something in German about stopping, stop the zeppelin, you must stop the zeppelin. Behind him was Paul Scherrer, trying to catch up, yelling something himself: "Carl, don't shoot, do not shoot. The hydrogen! The hydrogen!"

So they knew, or at least Scherrer did. No surprise there. Moe reached into this pocket and pulled out the Beretta. Weizsäcker was a good thirty yards away. It would take a very lucky shot.

Weizsäcker stopped running and stood there, pulling a loaded magazine out of his coat pocket and fumbling with it as he loaded the Luger. There was an audible click as the magazine catch snapped into place.

Scherrer reached him, grabbed his arm, and Weizsäcker turned and shoved him away and then shot him, close range, no more than five feet away. Scherrer spun once and fell.

Moe Berg had taken a first in marksmanship in his training, though that was with the Colt .45. Still, he'd spent two days at Scherrer's house a couple of months ago, standing right near this dock in some other reality a long way from this one, target shooting with the Beretta so he could shoot and kill a Nazi. OK, here was the chance. He took aim as Weizsäcker turned back around and fumbled with pulling the toggle joint in the rear of the Luger to bring a round into the chamber. That took two seconds and then he started to point the Luger at the *Hindenburg*.

And died there, a hole made by the bullet from Moe Berg's Beretta appearing above the left ear.

Moe walked over briskly, clouds of vapor from his suddenly heavy breathing wreathing him as he reached Weizsäcker, who had fallen to his knees but still seemed to be alive. This man had shot Paul Scherrer. Moe put the second shot into the back of the head and as Weizsäcker fell to his side and then rolled, dead, onto his back, Moe put one more shot, for good measure, into the Nazi's forehead.

And suddenly it was very quiet. Moe could hear the crunching of snow as

someone else approached. He looked up and it was, of course, the woman. She knelt over Scherrer, who was moaning.

"The bullet went through the flesh of the forearm. Not much blood. He's very lucky," she said, "but I suppose his pitching career is over, right, Moe?"

Scherrer wasn't wearing a coat, it had all happened too fast for that. She began tearing away the long sleeve of his shirt to get a strip of cloth to tie around the wound.

"You're very funny," Moe said.

She rose to her feet. A number of people were coming, but they had a few seconds before help for Scherrer arrived. "You know, Moe, in some of the scenarios you never get to Europe."

"What?"

"Yes, it's true. Sometimes you're a ball-player and sometimes you're a lawyer and sometimes you're living at home with your sister, alone, reading your newspapers, afraid of the world."

"Not afraid, really; that's not what it's about."

Behind him, the engines roared to life and the zeppelin moved out over the lake, toward Lucarno, and tomorrow to Berchtesgaden and by noon to doing something real, something that mattered.

"It's all very uncertain, Moe," she said, smiling. He shook his head. A moment like this and she's making Heisenberg jokes.

"Moe," she said, "There's a place where you're a catcher for the Senators."

"God forbid."

"But in all these places, all these myriad of possibilities, you're reachable. You move through the frames easily. And you always get the job done."

"You know, I'm not stupid..."

"Quite the contrary, Moe. Your intelligence, your languages, that and your ability to move through the frames; that's why we need you."

"I got to admit I'm not real sure what's going on here."

The crowd from the party had reached them; people were kneeling over Scherrer, trying to help, and looking, fascinated and horrified, at the bloody mess that had been Carl Weizsäcker.

"OK," Moe said, "I get it. Count me in."

She smiled at him, reached out to take him by the arm, and then, after the nausea, after the moment of dizziness, the two of them, Moe Berg and the woman, alone on the lakeshore, walked away into the quiet darkness of a strangely warm December night in Zurich.



Learning with the *Times*: What if?

Identify a specific point in American history before the year 2000 for which you are interested in changing the outcome. This is your point of divergence. Using the *Tampa Bay Times* and online resources such as the Library of Congress (loc.gov), the Smithsonian (americanhistory.si.edu) and HISTORY.com, research background information leading up to and immediately following the event. Identify both the immediate changes and the long-term impacts that your divergence would have on modern society. Use the ReadWriteThink online Timeline tool (readwritethink.org/files/resources/interactives/timeline_2/) to create a graphical representation of the changes.

Next, use the ReadWriteThink Comic Creator, Printing Press, Profile Publisher and/or Trading Card Creator to create at least one "new" primary source document as evidence of the point of divergence occurring. Each primary source should be a different kind of resource.

Next, use the ReadWriteThink Comic Creator, Printing Press, Profile Publisher and/or Trading Card Creator to create at least two "new" primary source documents describing or relating to events that would have resulted from your divergence. At least one of these sources should be from the immediate time period following your divergence (within two years), and at least one should be from "modern" America (since 2000). Each primary source should be a different kind of resource.

Present your project to your class. Include why you chose your point of divergence and why you chose to create particular types of primary source documents.

Links:

- ReadWriteThink Comic Creator: readwritethink.org/files/resources/interactives/comic/
- ReadWriteThink Printing Press: readwritethink.org/files/resources/interactives/Printing_Press
- ReadWriteThink Profile Publisher: readwritethink.org/files/resources/interactives/profile/
- ReadWriteThink Trading Card Creator: readwritethink.org/files/resources/interactives/trading_cards_2/

Sources: ReadWriteThink, What If? History Project

Activity: Ethical questions in science fiction

Many science fiction stories present difficult ethical questions. Select an action or decision in the plot of "Something Real" and write a persuasive paper that explains how things could have been handled differently. Use the ReadWriteThink Persuasion Map to plot your arguments.

Links:

ReadWriteThink Persuasion Map: readwritethink.org/files/resources/interactives/persuasion_map

Source: ReadWriteThink.org

Alternate Times:

a writing contest for Tampa Bay high school students

tampabay.com/nie/AlternateTimesContest

Tampa Bay high school students, submit your original, unpublished short story based on one of the scenarios below by Oct. 6, 2014.

The Grand Prize Winner will receive:

- \$100 grand prize
- Invitation to read the winning story as a presenting author at the 22nd Annual Tampa Bay Times Festival of Reading on Sat., Oct. 25, 2014
- Publication of the winning story on the Tampa Bay Times Newspaper in Education website and the University of South Florida Humanities Institute website.
- Grand Prize Award plaque

Deadline

- The contest opens at 12:00 a.m., Sept. 1, 2014.
- The deadline for submissions is 11:59 p.m., Oct. 6, 2014.

How to enter

- Visit tampabay.com/nie/AlternateTimesContest for complete rules and to enter.

Rules

- The contest is open to all students in grades 9-12 in public and private schools in Citrus, Hernando, Hillsborough, Manatee, Pasco and Pinellas counties.
- Stories must be unpublished and unsold.
- There is no fee to enter.
- Writers may submit an unlimited number of stories.

Sponsored by the Tampa Bay Times Newspaper in Education program and the University of South Florida Humanities Institute.

Alternate history (n) –

a genre of fiction in which the author speculates on how history might differ in an alternate version of Earth or how history might be altered if a particular historical event on this Earth or a parallel Earth had had a different outcome.

What if the Romans won the Battle of Adrianople and the Roman Empire continued into modern times?

What if Charles Babbage's Difference Engine #1 had been constructed and worked successfully, so working computers were available in 1833?

What if the Confederate troops had taken Little Round Top and Robert E. Lee had won the Battle of Gettysburg?

What if noted athlete Jim Thorpe had played baseball for the Yankees and set the home run record with a homer off young Red Sox pitcher Babe Ruth?

What if African-American pilot Bessie Coleman had received financial backing to fly the *Spirit of Chicago* plane solo across the Atlantic in 1926?



Submissions will be judged by a panel of experts, including professional science fiction authors **Alan Smale, Harry Turtle-dove** and **Rick Wilber.**

About the judges



Alan Smale

Alan Smale is an astrophysicist and author who writes alternate and twisted history, science fiction and fantasy. Smale's short fiction and non-fiction science pieces have appeared in numerous anthologies and magazines including *Asimov's Science Fiction*,



Realms of Fantasy and *Lightspeed*. His novella of a Roman invasion of ancient America, "A Clash of Eagles," won the Sidewise Award for Best Short-Form Alternate History in 2010, and the first in his trilogy of novels set in the same universe, *Clash of Eagles*, will be published by Del Rey in 2015.

Smale grew up in Yorkshire, England, and has degrees in physics and astrophysics from Oxford University. He currently serves as director of the High Energy Astrophysics Science Archive Research Center at NASA's Goddard Space Flight Center. While at NASA, he has worked on a wide range of exciting space astrophysics missions, such as Chandra, Suzaku, RXTE and Swift.

For more information about Alan Smale, visit alansmale.com.

Harry Turtledove

Harry Turtledove began as an academic historian, but soon turned to writing full-time. Since the 1990s, he has established himself as one of the most prolific and accomplished authors in the science fiction genre. His books include series such as *Timeline 191*, in which the Confederacy won the American Civil War, and *Worldwar*, in which aliens invaded Earth during World War II. Other writing addresses historical eras from the Byzantine Empire to Shakespearean and American Colonial times. His most recent novel is *Last Orders*, the final installment in his series *The War That Came Early*. The *War That Came Early* presents a timeline in which World War II began over Czechoslovakia rather than Poland and about a year earlier than in our own timeline.

Turtledove's numerous recognitions include the HOMER Award for Short Story for "Designated Hitter," the John Esthen Cook Award for Southern Fiction for *Guns of the South*, and the Hugo Award for Novella for "Down in the Bottomlands." He was the guest of honor at the USF Humanities Institute's 2014 Science Fiction Symposium.

For more information about Harry Turtledove, visit sfsite.com/~silverag/turtledove.html.



Rick Wilber

Rick Wilber teaches creative writing and journalism at the University of South Florida in Tampa and has published nearly 50 short stories, several novels, several short-story collections, a memoir and several college textbooks on writing and editing.

He is the co-founder, co-judge and administrator for the Dell Magazines Award for Undergraduate Excellence in Science Fiction and Fantasy Writing, the top award in the world for undergraduate writers in the science-fiction and fantasy genres.

His short story "Something Real," the first of a series of alternate history stories featuring baseball player and spy Moe Berg, won the Sidewise Award for Best Short-Form Alternate History in 2013. His most recent publication is an anthology he edited, *Field of Fantasies: Baseball Stories of the Strange and Supernatural*, which reprints classic baseball-fantasy stories by W. P. Kinsella, Stephen King, Ray Bradbury, Karen Joy Fowler, Jack Kerouac, T. Coraghessan Boyle, Valerie Sayers, Ray Gonzalez, Robert Coover, Rod Serling, Harry Turtledove and many more. His most recent short story, "Scouting Report," appeared in the September issue of *Asimov's Science Fiction*.

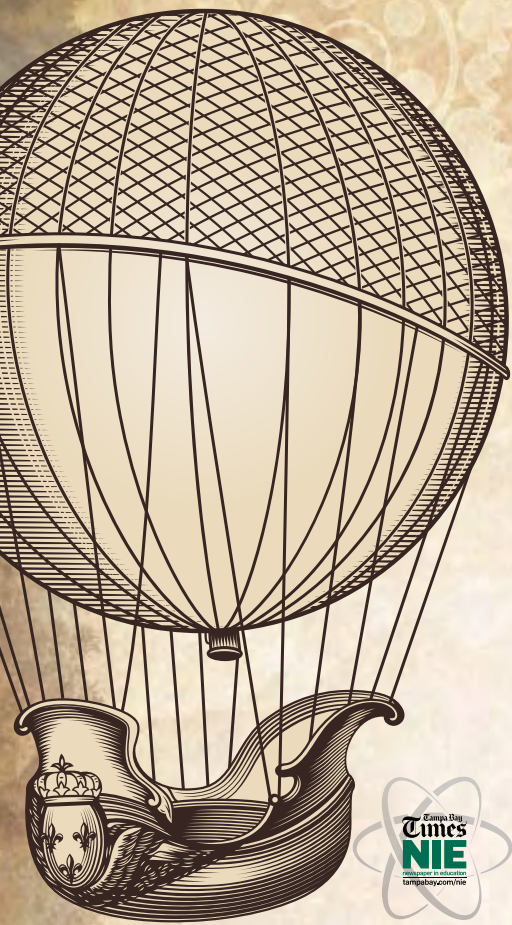
For more information about Rick Wilber, visit rickwilber.net.



Learning with the Times

As you have learned from reading this supplement, twisting history and the future are common elements of science fiction writing, but altering the present can be fun, too. With a partner, read through the articles in this week's *Tampa Bay Times*, choose 10 articles and alter them just a bit to turn them from news to science fiction. On a piece of paper, briefly summarize each article. Then write a paragraph showing an alternate view. In order to create an alternate view, you will need to change some factual element of the story. Share your best attempts with your class.





Alternate Times:

a writing contest for Tampa Bay high school students

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Sponsored by the Tampa Bay Times Newspaper in Education program, the Tampa Bay Times Festival of Reading and the University of South Florida Humanities Institute. See Pages 14-15 for details.



Newspaper in Education



The Tampa Bay Times Newspaper in Education (NIE) program is a cooperative effort between schools and the *Times* to encourage the use of newspapers in print and electronic form as educational resources.

In the Tampa Bay area each year, more than 5 million newspapers and electronic licenses are provided to teachers and students free of charge thanks to our generous individual, corporate and foundation sponsors.

In addition to providing free class sets of the *Times*, NIE also supplies Tampa Bay-area educators with award-winning original curriculum supplements, teacher guides, lesson plans, educator workshops and many more resources, all at no cost to schools, teachers or students. NIE teaching materials cover a variety of subjects and are correlated to the Florida Standards.

The newspaper and NIE curriculum supplements provide teachers with contemporary informational texts that engage students and relate academic learning to real-world experiences. The primary purpose of informational text, a type of nonfiction text, is to convey information about the natural or social world.

The use of this curriculum supplement in the classroom will help educators to integrate English-Language Arts (ELA) skills across content areas, including science and history, a core focus of the Florida Standards.

For more information about NIE, visit tampabay.com/nie or call 800-333-7505, ext. 8138. Follow us on Twitter at [Twitter.com/TBTimesNIE](https://twitter.com/TBTimesNIE).

For additional copies of this NIE publication, email ordernie@tampabay.com.

NIE Staff

Jodi Pushkin, manager, jpushman@tampabay.com
Sue Bedry, development specialist, sbedry@tampabay.com

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Activities by Jodi Pushkin
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FRANK E. DUCKWALL
FOUNDATION

Challenge, Create, Connect

The USF Humanities Institute, established in 2003, provides a forum where ideas are debated, values are clarified, and students, faculty and community come together to envision a better world through scholarship, debate and public programs.

The Humanities Institute showcases the scholarship of USF faculty from across the disciplines and hosts renowned scholars and speakers on topics that appeal to both university and community audiences. All events are free and open to the public.

Each year, the Humanities Institute sponsors a science fiction symposium. In 2014, the symposium featured author Harry Turtledove, hailed as the master of the alternate history genre.

For more information about the USF Humanities Institute, visit humanities-institute.usf.edu.

Florida Standards

This publication incorporates literature and informational text that adheres to the following English Language Arts Florida Standards for high school:

LAFS.910-1112.RL.1.1; LAFS.910-1112.RL.1.2; LAFS.910-1112.RL.1.3; LAFS.910-1112.RL.2.4; LAFS.910-1112.RL.2.5; LAFS.910-1112.RL.2.6; LAFS.910-1112.RL.3.7; LAFS.910-1112.RL.3.9; LAFS.910-1112.RI.1.1; LAFS.910-1112.RI.1.2; LAFS.910-1112.RI.1.3; LAFS.910-1112.RI.2.4; LAFS.910-1112.RI.2.5; LAFS.910-1112.RI.2.6; LAFS.910-1112.RI.3.7; LAFS.910-1112.RI.3.8; LAFS.910-1112.RI.3.9; LAFS.910-1112.W.1.1; LAFS.910-1112.W.1.2; LAFS.910-1112.W.1.3; LAFS.910-1112.W.2.4; LAFS.910-1112.W.2.5; LAFS.910-1112.W.2.6; LAFS.910-1112.W.3.7; LAFS.910-1112.W.3.8; LAFS.910-1112.W.3.9; LAFS.910-1112.SL.1.1; LAFS.910-1112.SL.1.2; LAFS.910-1112.SL.1.3; LAFS.910-1112.SL.2.4; LAFS.910-1112.SL.2.5; LAFS.910-1112.SL.2.6; LAFS.910-1112.L.1.1; LAFS.910-1112.L.2.3; LAFS.910-1112.L.3.4; LAFS.910-1112.L.3.5; LAFS.910-1112.L.3.6; LAFS.910-1112.RH.1.1; LAFS.910-1112.RH.1.2; LAFS.910-1112.RH.1.3; LAFS.910-1112.RH.2.4; LAFS.910-1112.RH.2.5; LAFS.910-1112.RH.2.6; LAFS.910-1112.RST.1.1; LAFS.910-1112.RST.1.2; LAFS.910-1112.RST.1.3; LAFS.910-1112.WHST.1.1; LAFS.910-1112.WHST.1.2; LAFS.910-1112.WHST.2.4; LAFS.910-1112.WHST.2.5; LAFS.910-1112.WHST.2.6; LAFS.910-1112.WHST.3.7; LAFS.910-1112.WHST.3.8