The True Sense of a Word

Melissa Hartman

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VOLUME 5 • NUMBER 2

ImaGiNe...

Opportunities and Resources for Academically Talented Youth

November/December 1997

SPOTLIGHT ON LITERATURE, LANGUAGE, AND LINGUISTICS

How to Read a Poem

In Search of Black Holes

Karate Kicks

Students Review Harvey Mudd College

Published by the Johns Hopkins University Press for the JHU Institute for the Academic Advancement of Youth

From the Editor

Dear Reader,

In his essay "University Days," James Thurber relates that he could never pass botany because, despite the urgings of his professor, he could never see through the microscope:

> *"I can't see anything," I would say. He would begin patiently enough, explaining how anybody can see through a microscope, but he would always end up in a fury, claiming that I could* ***too*** *see through a microscope but just pretended that I couldn't. "It takes away from the beauty of flowers anyway," I used to tell him. "We are not concerned with beauty in this course," he would say. "We are concerned solely with what I may call the* ***mechanics*** *of flars."*

Although they were both interested in the flowers, Thurber cared more about aesthetics while his professor was more concerned with structure. But both ways of appreciating the flowers are valuable and significant.

Like Thurber's flowers, language can intrigue us in different ways. When we study literature, for example, we have several approaches from which to choose. We can consider a work in its historical context, learning more about the time period in which it was written to understand it more fully. Or we might learn more about the author to see if we find biographical elements in a text. We even have the option of not considering any information other than the words contained in the poem, story, or play itself. Each of these approaches can yield a significant reading—it's up to us to decide which will be the most meaningful and interesting.

Just as approaches to a literary work may vary, so may our individual responses to it. You and I might thoroughly enjoy reading the same story, but when asked why we enjoyed it, we would probably give different reasons. You might cite the strong characters or images or symbols, while I might say that I simply liked the writer's style or the surprise ending. We would respond to the text in ways as individual as we are, which is one of the greatest pleasures of reading and discussing literature. Unlike Thurber in his botany class, we could use both perspectives to gain a deeper appreciation of what we've read.

That is, of course, if we enjoy reading and discussing literature. For some students, the appeal of language lies not in how writers use it to create art ("the beauty of the flowers"), but in the science of language ("the mechanics"). Linguistics and its subfields offer a wide range of ways to study language in a scientific way. For example, syntacticians and phonologists analyze diverse languages to look for patterns in structures, while researchers in psycholinguistics investigate how our brains process language. And there's even a way to combine your interests in language and computers: natural language processing, which focuses on using computers to interpret human languages.

In this issue of *Imagine*, we explore a variety of ways to study—and be fascinated by—language. You'll discover how language has captivated our writers, from the underlying structures that govern languages, sentences, poems, and fairy tales to the artistic use and significance of individual words. So whether your interests include literature, computer science, or both, read on.

Melissa Hartman

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On the cover:
Caitlin McDonough-Thayer performs in an adaptation of Shakespeare's **Pericles** *by David Montee. Photo by David Speckman, courtesy of Interlochen Center for the Arts.*

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The True Sense of a Word

by Melissa Hartman

The English language has a history full of heroism and tragedy, conflict and accommodation; it has been shaped by warriors, missionaries, scholars, and peasants. We draw from this history every day as we write and speak a language that has been evolving for more than 1,500 years. We use words centuries old without realizing it—but if we listen, these words have stories to tell.

Exploring etymologies—the origins and historical development of words—is the practice of listening to these stories. If you spend some time learning the history of words, you'll have a better understanding of the English language, you'll access new levels of meaning, and you'll improve both your reading and writing abilities along the way.

The Poetry of Origins

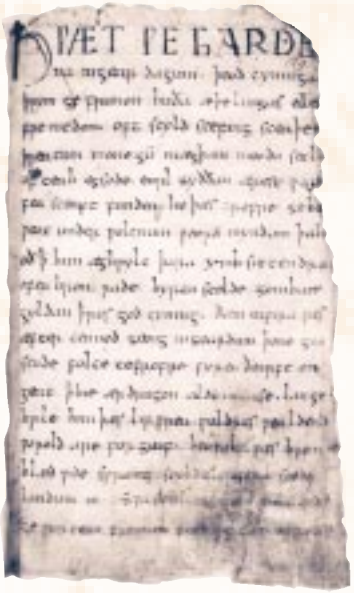
In *Nature*, Ralph Waldo Emerson observes, "as we go back in history, language becomes more picturesque, until its infancy, when it is all poetry." Etymologies reveal this poetry by taking us back through a word's history and often allowing us to see an original concreteness. Emerson points out, for example, that "*right* means *straight*; *wrong* means *twisted*."

Some words have origins that even sound like poetic expressions. For example, *squirrel* is from Greek roots that combine to mean *shadow-tail*. And *daisy* comes from an Old English compound word, *dægsage*, or *day's eye*. The word originally referred to a flower that closed its petals at night and opened them during the day, hiding and then revealing its figurative eye. Another flower, the dandelion, takes its name from the French *dent de lion*, or *lion's tooth*, a reference to the jagged, tooth-shaped leaves of the plant. All of these words have origins that are really metaphors, figures of speech that attempt to capture the essence of one thing by describing it in terms of something else.

The etymology of *bead* reveals another figure of speech, metonymy, in which we refer to one thing by the name of another thing commonly associated with it. *Bead* derives from *gebed*, the Old English word for *prayer*. As the medieval Christian practice of "telling one's beads"—using beads on a string to keep count of one's prayers—became common, the word for *prayer* came to refer to the beads themselves. *Gebed* eventually became *bede*, referring specifically to rosary beads, in Middle English. From there, the meaning extended to include other kinds of beads and even bead-like objects, such as a *bead of water*.

The Making of English

As you study etymologies, you'll discover that the words we use today have origins in many different languages. This diversity, which gives English its remarkably flexible and subtle powers of expression, evolved as the inhabitants of the British Isles came into contact, by force or by choice, with people who spoke other languages.



Excerpt from* Beowulf, *written c. 1000 A.D. Reprinted from "The Electronic Beowulf," edited by Kevin S. Kiernan

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Invaders from Denmark and Germany, called Angles, Saxons, and Jutes, brought their Germanic languages to the British Isles beginning in 449 AD. Later simply called Anglo-Saxons, they blended their languages into a mutually understandable one that we know as Old English. Over the next 150 years, as the Anglo-Saxons drove the native Britons and their Celtic languages west, they established a kingdom that roughly corresponds to modern-day England. Just as importantly, they set down the tenacious roots of language that survive in English to this day.

As England converted to Christianity, beginning with the arrival of St. Augustine and his monks in 597, about 400 Latin and Greek words entered Old English. With the capacity to express abstract thought, these words augmented the Anglo-Saxon vocabulary that was based so heavily in the physical world. The Old English vocabulary, which already included such words as *crop*, *field*, *plow*, and *rain*, grew to incorporate *angel*, *apostle*, *relic*, *martyr*, and other religious terms. The language now had words to describe both physical and spiritual experiences.

It wasn't until about 200 years later that English met the first threat to its survival. In 793, the Vikings began invading the British Isles; by 850 they controlled nearly half of Britain. But in 878, in a surprise attack mounted by King Alfred of Wessex, the Vikings were defeated. Although this defeat ensured that Norse would not replace English as the language of Britain, Old English did take in about 900 Norse words. Since the two languages were quite similar, many of these words were cognates (words in different languages that share the same root and similar meanings) of Anglo-Saxon words. For example, the Anglo-Saxon *scyrte* and the Norse *skyrta*, both of which originally meant *shirt*, coexisted in Old English.

Had the story ended there, today we might be speaking a language similar to modern Dutch. But in 1066, the year of the Norman Conquest, English was forever changed. The French-speaking conquerors took over the high positions in the government, the courts, and the churches. English was spoken only by the laboring class.

For generations after the Norman Conquest, language reflected this difference in class. But when the King of France forced the Norman nobles in England to choose between their properties in France and England in 1244, those who remained in England had a reason to learn its language. The Hundred Years War between England and France provided another reason to speak English rather than French, as did the

Black Death of 1349-50, which, by making labor scarce, improved the status of the English-speaking working class. English had survived.

But it had changed—dramatically. Some Latin and French words replaced Anglo-Saxon words; some cognates coexisted; and some compound words, such as *gentleman*, were created from French and Anglo-Saxon elements. The result of this blending was Middle English, a language that, unlike Old English, is intelligible to modern readers.

The Renaissance, with its emphasis on classical scholarship, brought even more Latin and Greek words into English. And when new words were needed for inventions and discoveries during the Industrial Revolution, many were created from Latin and Greek roots. Words from all over the world came into English with the growth of the British Empire, and even today, English is evolving with advances in technology and increased exposure to the rest of the world.

Getting Back to the Roots

As a reader, you may already be aware of the benefits of knowing etymologies. If you've ever taken a class in French, Spanish, or Italian, you've probably noticed the similarities between English and the Romance languages (languages that developed from Latin, named for their link with Rome). You may have even been able to figure out meanings of unfamiliar words in English by remembering similar words in another language. Because so many English words come from Latin and the Romance languages, you can enjoy the same benefit by learning etymologies. While you may initially spend a lot of time with the dictionary, you'll eventually spend less time looking up words and referring to footnotes for definitions.

You'll also find that your readings of texts will become much richer and more precise. Especially in texts more than a century old, etymologies are your link to a layer of original meaning, which context alone might not make clear. For example, when you read in Andrew Marvell's *To His Coy Mistress*, "My *vegetable* love should grow/ Vaster than empires, and more slow," you'll know that Marvell isn't referring to a garden but using *vegetable* in its original sense, as an adjective meaning alive, growing. Similarly, when Hamlet describes "an excellent play, well *digested* in the scenes," you'll know that he is praising the play for its order and arrangement, which you probably wouldn't realize if you relied on today's definition of the word.

Since a word's significance in context often lies somewhere between its original and modern definitions, knowing the original meaning helps us define a frame of reference. Of course, you'll still have to decide which meanings best apply in a given context, but you'll have the full range of possibilities to choose from.

As a writer, you can become more precise in your expression if you know etymologies. If you've ever used a thesaurus to help you avoid repetition in a paper for school, you've seen many different ways to express the same idea. But do all of those words listed under *see*, for example, really mean the same thing? Or are there shades of difference in meaning between *view*, *behold*, *perceive*, and *observe*? Careful word choice means paying attention to the slight distinctions, which etymologies can help clarify.

If you write poems, stories, plays, speeches, or editorials, these distinctions may exist at the level of sound as well as meaning. Take for example the Anglo-Saxon words *climb, kingly, sad*, and their Latinate synonyms *ascend, sovereign*, and *melancholy*. Similar in meaning, the word pairs have quite different sounds, which a thoughtful writer can use for effect. It might make more sense for a character who speaks in monosyllables to say that he's *sad* instead of *melancholy*; in a line of poetry that needs hard consonant sounds, you'd probably want to use *climb* instead of *ascend*. Carefully choosing words from one source or the other, or intentionally blending them, can have subtle but powerful effects on your audience.

Learning etymologies takes time. Some students make lists or use note cards to help them remember common roots; others learn as they read. No matter what your strategy, by studying etymologies, you'll improve your ability to use and understand the English language. You'll see history at work—even in a single word. And if you're attentive, you'll see the flash of poetry, you'll hear the stories behind the words.

Selected Resources

Dave Wilton's Etymology Page
home.sprynet.com/sprynet/dwilton/etyma1.htm

Focusing on Words
www.wordfocus.com

Fun with Etymology
www.compassnet.com/mrex/etymol.htm

The Logical World of Etymology
www.phoenix.net/~melanie/thelogic.htm

Richard Lederer's Verbivore Page
pw1.netcom.com/~rlederer/index.htm

Where's THAT From? (game)
www.intuitive.com:80/origins/

The Word Detective
www.users.interport.net/~words1/index.html

The Word Wizard
wordwizard.com

Bryson, Bill. *Made in America: An Informal History of English in the United States.* New York: Morrow, 1994.

Carver, Craig M. *A History of English in Its Own Words.* New York: HarperCollins, 1991.

McCrum, Robert, William Cran, and Robert MacNeil. *The Story of English.* New York: Viking Penguin Inc., 1986.

The Buzz about the Bee:

Winning the 1997 National Spelling Bee

by Rebecca Sealfon

The Scripps-Howard National Spelling Bee is a two-day competition held in Washington, D.C. Almost 250 kids from around the country and from U.S. territories, embassies, and military bases are hosted for a week at a fancy hotel, with recreational activities planned daily. To get to Washington, these kids must win at the classroom, school, district, and regional levels. Over nine million kids between grades four and eight begin the process.

I had participated in the 1996 national finals and met so many interesting, diverse, and talented people there that it was one of the best weeks of my life. But I also knew from last year that the competition is serious. To make it back in 1997, my last year of eligibility, I would have to study hard.

Beginning the Monday after I came home, I studied 2–3 hours a day, five days a week. Early in the morning, I would go over the dictionary (which I didn't find very helpful), books of old national and regional word lists, old study booklets that were put out by the bee, vocabulary books, and books about language of origin, roots, prefixes, and suffixes. I also read widely in a variety of fields and made special note of new words. Still, I wasn't sure I'd win. I'd seen a lot of very strong spellers eliminated in early rounds.

A year passed before I knew it, and March 19, the day of the *Daily News* regional spelling bee, arrived. Some spellers study for a whole year and don't make it back. But I made it: as one of two co-champions at the regional bee, I was eligible for the nationals again. I was looking forward to returning, and, I have to admit, I wanted to win!

Before I left for the national finals, I was very nervous. I knew I'd studied hard, but was it enough? I hoped I would be among the top spellers who sit on a dais, apart from all the others, at the awards banquet. These spellers' pictures and bios are included in the next year's study booklet.

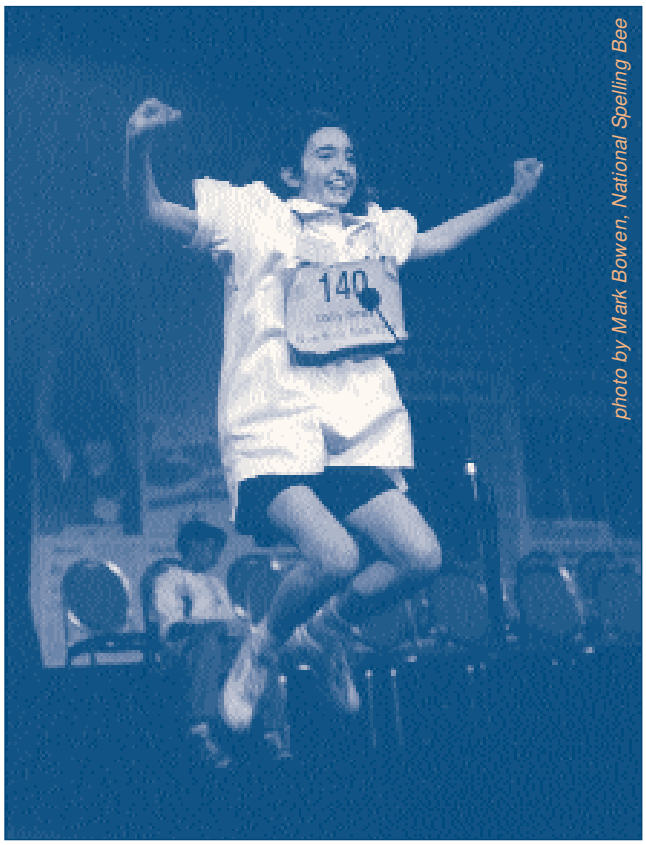

photo by Mark Bowen, National Spelling Bee

The drive from Brooklyn to Washington with my family seemed longer than it should have. But after we finally arrived, time started to pass quickly. Bee Week includes lots of activities where you can meet people with similar interests. The first night, there was a spellers' ice cream party, where I met new friends and was reunited with old ones. The next day there was a barbecue, and a friend, my sister and I went on the second annual homeschoolers' hike. The day after that included a tour of Capitol Hill and an evening event, the Parents' Bee, which my parents were too cowardly to sign up for. The next day the bee would begin!

On the first day of competition, the spellers are divided into two groups based on the first letter of their state. Because I am from New York, I was one of the early spellers in the afternoon group. I correctly spelled my three words: *sesquicentennial, inducement, prejudicial.* I had survived the first day. That night, I tried not to think about what would happen next.

The next morning, I had to be on stage at 7:45. I was so nervous that I couldn't eat. I had trouble walking. Every few steps, I had to take a rest. But the staff was very nice and let me sit offstage. I didn't want to see the bee, but at least I didn't back out.

Finally, it was my turn. I walked to the microphone. *V-a-p-o-r-e-t-t-o.* I sat down, feeling much calmer. Round Five (*bivouac*) passed, followed by a lunch break. Round Six began, and now the spellers were on ESPN. Soon a good friend was out. I had been hoping she would do better. She'd studied really hard. My word was *grosgrain*. Correct.

Last year, I'd survived to Round Seven, and this year I was doing as well. The word was *hippogriff*, which I knew. Now it was Round Eight, which had been the cutoff round for the dais for the previous two years. There were only nine spellers left. Several rounds passed. Now there were seven, now six, now four, now three. I was in! I'd met my goal, surpassed it. Even if I didn't get past this round, I would be sitting next to the champion on the dais!

Now I was sitting onstage. Three more rounds passed and one more person was out, leaving just me and Prem Trivedi.

Prem and I both got our words right. Several rounds passed before Prem misspelled a word. This was my chance to win the championship! I was given the word *dulcinea*. The bell the judges ring when a contestant misspells a word, the bell I was afraid of, the bell I had studied for a year to try *not* to hear, was rung. According to the rules, we were both back in.

Prem and I bounced back and forth. Correct. Correct. Correct. Correct. Now the bee was 50 minutes overtime on ESPN. After Prem misspelled his word in Round 22, I spelled *coterie*, a word from my vocabulary books. But to win, I had to spell another word: *euonym*, a word I knew from studying Greek roots. "E! U! O! N! Y! M!" I yelled into the microphone. The unbelievable had happened! I had won!

I was immediately interviewed onstage, with about 20 microphones pointed in my direction. After the bee, we made arrangements for other interviews. I was on the *Rosie O'Donnell Show,* the *Geraldo Rivera Show*, CNN, *CBS This Morning,* Brazilian PBS, and countless other programs. I was also interviewed for many articles in various newspapers and magazines and met many politicians. I was asked to be a spokesperson against teen smoking and to work for literacy in Philadelphia. During a radio interview with Mayor Giuliani, I also volunteered to work for literacy in New York City. In addition to being interviewed, I was invited to write several articles. It was one of the best summers of my life.

This year I am attending high school. My school is very competitive, and there is a lot of homework. Since I was homeschooled for five years, it was a big change to go from a school of three to a school of 3,000. But I think studying for and being in the National Spelling Bee was an excellent preparation for these challenges and for my future.

Rebecca Sealfon's interest in words extends to writing stories and reading. In addition to playing piano and competing in chess tournaments, she enjoys outdoor sports such as skiing, biking, kayaking, and hiking.

COMPETITIONS IN LITERATURE AND LANGUAGES

National Language Arts Olympiad

Schools can register multiple teams in October for the April Olympiad. Student participants are tested on spelling, vocabulary, reading comprehension, and grammar. The top ten scores from each team are ranked against those of other schools. Individual and team prizes are given at the national level. *National Language Arts Olympiad, P.O. Box 2196, St. James, NY 11780-0605; (516) 584-2016.*

Scripps Howard National Spelling Bee

Students in grades 7 & 8 enter the competition only through a sponsoring newspaper. Ask your local press if they participate, or find your sponsor on the Spelling Bee's Web site. The winner of the National Spelling Bee wins $6,000 in cash and savings bonds; other finalists receive $50 to $4,000. *Scripps Howard, P.O. Box 5380, Cincinnati, OH 45201; (513) 977-3040, fax (513) 977-3019; bee@scripps.com; www.spellingbee.com*

WordMasters Challenge

Teachers register their 7th and 8th grade classes in mid-October for the National Competition. Classes participate in three "analogies meets," and the top ten scores from each class are ranked on a national level. The highest ranking students in each class receive medals and certificates. *WordMasters, 213 East Allendale Avenue, Allendale, NJ 07401; (201) 327-4201, fax (201) 327-6219.*

National French Contest (Le Grand Concours)

Students of French register individually or through their teacher for the March exam. The top students nationwide and in each chapter receive certificates and medals. *American Association of Teachers of French, Le Grande Concours, P.O. Box 32030, Sarasota, FL 34239; fax (941) 364-9820; www.utsa.edu/aatf/aatf.html*

American Association of Teachers of German Testing and Awards Program

Teachers register students in second-, third-, and fourth-year German for the test by December 1st. Prizes are awarded by each AATG chapter, and range from t-shirts and books to trips to Germany. *American Association of Teachers of German, 112 Haddontowne Court, #104, Cherry Hill, NJ 08034; (609) 795-5553, fax (609) 795-9398; 73740.3231@compuserve.com*

National Greek Exam

Applications for students in grades 9-12 are due in early January and are accepted only from teachers (although home schoolers and others may write to explain special circumstances). High-scorers are eligible to apply for one of two $1,000 scholarships. *National Greek Exam, c/o Department of Classical Studies, University of Michigan, 2016 Angell Hall, Ann Arbor, MI 48109-1003; (313) 747-2300; drdavies@umich.edu; www.umich.edu/~acleague/*

National Italian High School Exam Contest

Students taking Italian I-IV register by the end of February. Prizes for top scorers include trophies and cash prizes up to $200. *American Association of Teachers of Italian, Attn: Bruna Boyle, Narragansett High School, 245 South Pier Road, Narragansett, RI 02882; (401) 738-8457, fax (401) 792-9410.*

National Latin Exam

Teachers register students in Latin I-V by January 10. Contestants are tested on grammar and comprehension, mythology, life, history, and classical literature. Top scorers in the National Competition win certificates and medals. *ACL/NJCL, National Latin Exam, P.O. Box 95, Mount Vernon, VA 22121; (703) 360-4354, fax (703) 455-6779; jhhall@pen.k12.va.us*

Olympiada of Spoken Russian

Each chapter of the ACTR decides whether to hold a local Olympiada—contact your Russian teacher for information. This contest is open to students in Russian I-V. Participants receive medals or honorable mentions; state or regional finalists spend four weeks studying in Russia and living with a Russian family. *American Council of Teachers of Russian, 1776 Massachusetts Avenue, NW, Suite 700, Washington, DC 20036; (201) 816-6618, fax (201) 871-8509.*

National Spanish Examination

Teachers register students for the exam, held between mid-February and mid-March—local coordinators choose the test date. The top three finalists in each level and category are given plaques. Some chapters provide additional awards. *American Association of Teachers of Spanish and Portuguese, 2051 Mt. Zion Drive, Golden, CO 80401; (303) 278-1021, fax (303) 278-6400.*

For more information about student contests, see *The Ultimate Guide to Student Contests: Grades 7–12* by Scott Pendleton (Walker and Company, 1997).

The Intricacies of Translation and the Creative Role of the Translator

by Lesley Mackay

Translating a text from one language into another involves both mechanics and mystery. Translators must be very knowledgeable about the languages in which they work and about the coincidences between them; for example, *gato* in Spanish has exactly the same meaning as *cat* in English. However, translators must also recognize the unique and even the untranslatable within each language—the elements of vocabulary, syntax, or significance that resist conversion into another idiom.

Reworking Aesthetic Features

A poet, for example, may use aesthetic elements, such as sound, in a way that cannot be transposed into a second language. Consider the following excerpt from a work by Juan Ramon Jiménez and its translation into English by Robert Bly. (Spanish has a strong phonetic basis, so you can read the lines aloud even if you are not familiar with that language):

Una rosa distinta,
de una imprevista majia,
sobre cada hora solitaria de oro o sombra,
hueco propicio a las memorias trágicas.

One particular rose,
that has an unexpected magic,
on top of each lonely hour of gold or shadows,
a place just right to hold painful memories.

Hear the difference? The internal rhymes within Jiménez's description have disappeared: "particular rose" does not provide the resonant echoes of "rosa distinta"; "painful memories" does not deliver the rhythmic effect of "memorias trágicas." It seems that the translator did not aspire to re-create the pleasing sounds of this poem in English.

Reworking Meaning

Perhaps Bly decided to concentrate on approximating Jiménez's ideas as closely as possible. Reproducing ideas in translation is tricky, in part because individual word meanings can be slippery—subtle in their usage and changeable over time. Even cognates, or words in different languages with the same roots, don't always have identical meanings. In Bly's translation of Jiménez, for example, he chose to translate "trágicas" into "painful," not "tragic."

Translators must recognize the unique and even the untranslatable within each language—the elements of vocabulary, syntax, or significance that resist conversion into another idiom.

Bly's decision not to use the English cognate probably relates to the different connotations of *trágicas*/tragic in Spanish-speaking and English-speaking cultures. Any language is profoundly shaped by the special histories and cultures of the people who created it and who continue to develop and use it. Because human societies perceive and describe the world in different ways, language systems can vary enormously. So, keeping a text's meaning intact while moving from one language to another can be very challenging.

Sometimes the word resources of two languages are simply unequal. For example, one of Federico García Lorca's famous poems about New York describes "un huracán de negras palomas." One translator turns this into "a hurricane of black doves" and another into "a hurricane of black pigeons." The reason for the discrepancy? A minute ambiguity in Spanish—one common name for two kinds of birds.

Gaps in a language's word resources can be truly daunting. In *The Poetics of Translation* Willis Barnstone relates that Bronsilaw Zielinski, who translated *Moby Dick* into Polish, had to create a set of words in that language for the elements of the whaling industry. His new words became incorporated into Polish. A translator must feel great satisfaction in permanently adding to a vocabulary.

However, language differences are not limited to the absence of a few specialized words. Variations can be major, extending to tense systems and the most structurally significant parts of speech. For example, the stories that would eventually make up the New Testament were first transcribed in Aramaic, a language that contains no variant of the verb "to be." And so, as Susan Bassnett-McGuire explains in *Translation Studies*, the New Testament, a book that contains many well-known declarations of Christ's identity, was created

out of a text in which those declarations could not be made.

Because of the array of great and small distinctions among languages, some translators choose to focus on *effect*. For example, a translator may rework an ancient text with the goal of providing contemporary readers with the same reading experience enjoyed by the original audience. This kind of translation relies in part on judgments about the culture in which the text was produced and the culture for which the translation is intended.

Mimesis and Creativity

Translators are faced with difficult choices because they cannot simply clone a text in one language into a text in another. However, the impossibility of simple replication makes translation not just complicated, but also fun and exciting. Some 20th century literary figures such as the Mexican writer Octavio Paz and the French scholar Jacques Derrida have concluded that the business of translation is producing original texts—or texts that are as original as any other. Consider the following basic points in support of their argument:

- All *original texts* are, to a degree, borrowed and adapted since they are produced within a tradition in which writers respect and respond to one another.
- All *translations* are, to a degree, original since language systems are incompatible, language elements are slippery in meaning, and since both reading and attempting to re-create a text are interpretive acts.

So, if you love words and languages, if you have the urge to respond to other writers and to create new texts, one of the many paths open to you is that of the translator. *Bonne chance!*

Selected Resources

Barnstone, Willis. *The Poetics of Translation.* New Haven: Yale University Press, 1993.

Bassnett-McGuire, Susan. *Translation Studies.* New York: Routledge, 1991.

Interview with a Translator

Interview with Walter Hryshko, graduate student in Romance languages at Harvard University, teacher of languages, and professional translator. Walter was a high scorer in the 1983 Johns Hopkins Talent Search.

How did you get interested in languages?

Members of my family use German, Polish, and Italian, so I grew up in an environment in which it was perfectly natural not to speak English. Also, as a child, I lived in Barcelona while making frequent trips back to the U.S. This probably cemented my multilingual identity.

Please tell us about your undergraduate and graduate work.

As an undergraduate at Harvard, I majored in political science with a minor in Romance languages. I wrote a senior thesis on political corruption in southern Italy. As a graduate student, I teach French, Italian, and Spanish and am currently completing a dissertation on Italian holocaust literature. Few Italian writers were in the camps; my study deals with the effects of racial laws on the literature written in the Jewish quarters of Italian cities.

It sounds as though you have a strong interest in politics and world events.

I'm interested in how political ideas are expressed in literature. For example, I am interested in how Machiavelli's political ideas are advanced by his uncomplicated prose style.

Do you explore cultural issues when you teach languages?

Absolutely. I feel that language students need a great deal of knowledge about a culture's history and everyday conventions. Studying the languages isn't enough. For example, very few people around the world say that they are "doing great" the way that Americans do. So, if I am teaching Americans, say, French, I teach them to moderate their expression of how they are doing, to say that they are "doing okay," for example.

Spanish and French are used by millions in the developing world as well as in Europe. How do you teach cultural information when a language is widely spoken on different continents?

When different cultures share a language, they also share much more, despite obvious differences between them. A certain way of looking at the world is shared. A philosophical perspective or set of interests is shared.

What do you find challenging about professional translation, and what kinds of documents have you translated?

Outside academia, I have translated personal, business, medical, and government documents. There is a tremendous amount of creativity involved in translating seemingly ordinary texts. Cultural differences often emerge, and I couldn't possibly produce a word-for-word translation in most cases. For example, I may be translating a medical document and realize that the two cultures explain illnesses differently. I have to be faithful to the source document, but I am concerned with how the text will be read by individuals in the second culture.

Have you also worked on translations of literary texts and, if so, do you have a particular approach to that task?

I have consulted on poetry translations. I find that I often prefer prose translations of poetry, especially of long poems such as those of Dante. I find verse translations to be a bit too contrived. The effort to fit in a rhyme scheme or meter to achieve a poetic flow can leave the poem forced and over-thought.

What is your professional goal?

To teach—to become a tenure-track professor of languages at an American university. I like teaching college students and adults. They tend to know the grammar of their own language and to have a strong native vocabulary, so I can teach at a level that's more advanced.

The Importance of Being Grammatical

by Eileen Ptak

Have you ever wondered—perhaps while you were struggling to remember what a pluperfect tense is—why you had to learn grammar at all? Is there a reason, other than to pass seventh-grade English, to study grammatical cases, rules, and exceptions to the rules?

Clarity! The obvious aim of writing and speaking is to communicate well. If your papers are riddled with grammar mistakes, your reader may be unsure of your point—and your writing ability.

Say What You Mean

Grammar is simply the underlying structure of language. Familiarity with the rules of grammar helps you organize and clarify your ideas. If you're careless with the basic rules, you might not say what you intend.

For example, *modifiers*, words that describe (or modify) other words in the sentence, should be as close as possible to the words they modify. When they are too far away, the result can be confusing or ridiculous. In the book *More Anguished English*, Richard Lederer recalls a sign posted at a gas station in Santa Fe, New Mexico: "We refuse to sell gas to anyone in a glass container." On the sign, the phrase *in a glass container* modifies *anyone* instead of *gas*.

In another case of a dangling modifier, an advertisement claims that an electronic pest repeller emits vibration and sound that are "intensely annoying to underground rodents up to 100 feet in diameter." Because the phrase *up to 100 feet in diameter* dangles at the end of the sentence, it modifies *rodents*. In this ad, the company is unintentionally making a claim it cannot prove—unless it has discovered some gigantic groundhogs.

Comma Placement, Blue Suede Shoes, and Shakespeare

The rules of punctuation were designed to ensure that your written sentences will be properly understood. Commas are perhaps the most misused element of punctuation, but when used correctly, they can measurably improve the intelligibility of your writing.

Commas can be used to set off nonessential elements—phrases and clauses that aren't critical to the sentence. These nonessential elements are sometimes called *nonrestrictive* or *nondefining* elements because they don't define anything in the sentence—they simply give more information.

In the sentence "My shoes, which are made of blue suede, match my hat perfectly," the phrase *which are made of blue suede* is not essential; it does not *define* the shoes, it gives you more information about them. The nondefining element is therefore set off by commas. However, in the sentence "When it started raining, I regretted wearing shoes that were made of blue suede," the phrase *that were made of blue suede* is defining and essential. When it started raining, the speaker didn't regret wearing shoes; she regretted wearing blue suede shoes. This defining element should not be set off by commas.

Grammar is simply the underlying structure of language. Familiarity with the rules of grammar helps you organize and clarify your ideas. If you're careless with the basic rules, you might not say what you intend.

Be careful not to surround essential phrases with commas. It is incorrect to write, "Shakespeare's play, *Romeo and Juliet*, is about star-crossed lovers." Since Shakespeare wrote many plays, the phrase *Shakespeare's play* does not provide enough information. We need to know which play is "about star-crossed lovers." This essential phrase should not be set off by commas.

Writing the Rules

Surprisingly, English grammar wasn't codified until the middle of the 18th century. For hundreds of years, people dangled modifiers and threw commas anywhere they wanted. So why did people start to care about sentence structure in the mid-1700s?

It was the Age of Reason, which was characterized by the desire to bring order to the world. In physics, scientists studied the rules that governed the universe; in biology, they classified all living things into logical categories. Amid this drive to organize, people realized that the English language needed solid structural standards. A few attempts had been made to establish standards, but their effects were minimal. In fact, Jonathan Swift wrote a letter to a government official calling for the formation of an academy of scholars who would correct and stabilize English, arguing that "our Language is extremely imperfect, that its daily Improvements are by no means in proportion to its daily Corruptions."

In 1755 Samuel Johnson published the comprehensive *Dictionary of the English Language*, one of the first attempts to codify the spelling and definition of words. Johnson's intention was to "refine our language to grammatical purity, and to clear it from colloquial barbarisms, licentious idioms, and irregular combinations." Grammarians followed Johnson's lead with a number of grammar guides. One of the most famous was Robert Lowth's *A Short Introduction to English Grammar*, published in 1762. In it, Lowth made distinctions between proper and improper grammar. He denounced the phrase "I had rather"—a corruption of "I would rather"—which he claimed "is by no means reducible to any grammatical construction." Also, the expression "you was" had been acceptable phrasing until Lowth and Joseph Priestly, another famous grammarian, decided that "you were" was more appropriate.

Lightening Up

In contrast to the 18th century's desire for a fixed structure and strict adherence to the rules, today's grammatical climate is much more relaxed. Some phrases that

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GRAMMARRRRGGHH!!!

Jonathan Freeman's Book Makes Grammar Fun

Shortly after receiving his bachelor's degree from Yale University, Jonathan Freeman began teaching English at the Bryn Mawr School in Baltimore, Maryland. To help make learning grammar more enjoyable for his junior high school students, he wrote* GRAMMARRRRGGHH!!!, *a book that uses funny explanations and examples about teenage life. The book has become so popular that he is now creating customized editions for other schools.

Why is grammar important?

Because it makes a difference. Proper grammar can improve your writing. Knowing the confines of the language can turn merely adequate writing into outstanding writing. The way you speak and write influences the way others perceive you. Sometimes, the correct use of language can be the difference between the candidate who gets the job and the candidate who doesn't.

What are the most common grammar mistakes made by students?

A lot of students tend to mistake *it's* and *its*, and I can tell you why they do that: it makes common sense. You use an *'s* to indicate a possessive, but *it's* means *it is*, while *its* is the possessive form. English is a weird language—weirder than a lot of other ones out there. Some of the mistakes are logically flawless, but that doesn't matter when they're dealing with a language that is, by nature, illogical.

What was the impetus to write your own grammar book?

The sheer necessity for something that combated the drudgery and boredom of most of the other grammar books until this time. I got tired of giving students readings that dealt with the material adequately and correctly, but whose texts were extremely dry and boring. The material in my book is no different, but the way it's presented makes all the difference in the world.

What did you hope to achieve with this book?

I wanted to demystify a lot of the high holy laws of grammar as they were presented by dictatorial teachers, who tend to be insistent about absolute adherence to the rules. I would hope to impart to my readers that we're all human, we all make mistakes, but you need to learn the rules and learn how to catch yourself committing mistakes—not in the first draft (that's what drafts are for), but maybe the second or third time around.

I wanted to give my readers a more liberal interpretation of the rules of English. There's nothing in my book that says you may never split an infinitive. The general rule, as I interpret it, is that you should not split an infinitive unless the alternatives are markedly inferior. The Star Trek motto does not work as well as "To go boldly...." And I don't think anyone would ever say, "Your behavior is something up with which I will not put." Yet, the more concise version requires that you end the sentence with a preposition. I'm striving for overall vigilance, but with the occasional permission to break those rules in the pursuit of larger goals, like clarity and concision.

How have your students reacted to your book?

They like it. The thing that shocked me the most was when students told me early in the school year that they had gone home and read the whole book. I was flattered; I hadn't expected that degree of enthusiasm.

Have other schools purchased it?

Yes, 20 schools so far have purchased the book. I'm incredibly flattered whenever a teacher tells me, "This is exactly what I've been looking for." Every once in a while I step back and think, wow, several hundred students are reading my words and, I hope, laughing.

I make a different edition for each school because it works best for the students if it is relevant to their lives—not only in the general sense of talking about teenage life and middle school experiences, but also in the very specific sense of mentioning their friends, their teachers, their school's traditions and idiosyncracies. When other schools started expressing interest, I quickly realized that references to Mr. Freeman and his colleagues were going to fall flat because they were not relevant. So I made a database on the computer, and now I can make customized editions.

For information about ordering *GRAMMARRRRGGHH!!!*, contact the Bryn Mawr School bookstore at (410) 323-8800.

Excerpts from *GRAMMARRRRGGHH!!!*

- Noun Clauses: Sometimes—and this is where we begin to despise whoever invented English—a whole bunch of words get together and form a gigantic, scary, fire-breathing noun when one word just won't do the job.

Whoever ate the last Ring Ding is in big trouble. (That bunch of words still indicates a person.)

- Commands (or imperatives) only look like they have no subject.

Stop feeding dirt to your little brother!

Actually the subject of the command is "you."

- Subject-Verb Agreement: Collective nouns refer to groups of objects, but are themselves singular.

My collection of Englebert Humperdink records is quite valuable.

- ***Beware*** the Passive Voice: Avoid the passive voice whenever possible. It's weak and ugly, it has bad manners, and it breaks another of the cardinal rules of English: Without sacrificing detail or feeling, be as concise as possible. (Translation: Say what you're going to say in the fewest number of words.)

The passive voice is hated by just about every English teacher. Poor grades are received by students who insist on using it.

From the Inside Out: How to Read a Poem

by Melissa Hartman

There it sits, in the middle of the page, surrounded by white space. Its jagged lines alert you before you even start reading: you've encountered a poem.

Because they don't look like the writing we encounter most often, poems can be intimidating even in appearance. However, a poem's shape is really the first indication that we need to read it differently than we would read a newspaper article or a chapter in a textbook. To understand, appreciate, and enjoy a poem, we have to use a unique approach.

Getting Inside the Poem

First, give yourself plenty of time to read a poem. If you're reading poems as part of a homework assignment, don't wait until the last minute. Although a page of poetry typically has fewer words than a page of prose, you will have to read those words many times.

In your first reading, don't try to understand everything at once. Read through the whole poem without stopping; even if you come across unfamiliar words or difficult passages, keep reading. After you've finished, look up unfamiliar words as well as familiar words used in unusual ways. Whatever larger meanings you draw from the poem will have roots in the individual words the poet has chosen, so pay careful attention to them in your early readings.

Once you have a sense of the meanings of all the words, try to write a paraphrase of the poem. This will require you to work through the poem line by line, untangling complex sentences, translating elevated, metaphorical, or archaic expressions into more common language, and articulating the poem's messages in relatively literal terms. Paraphrasing will clarify your understanding of the poem's central ideas, and you'll be prepared to focus on the poetry—the artistic use and arrangement of the words themselves—in successive readings.

Use Your Senses

Even in your first reading, you might notice a striking description that invites you to experience the poem with your senses. In "At the Fishhouses," for example, instead of simply telling us that fish scales cover everything, Elizabeth Bishop paints a word picture that allows us to see the place for ourselves:

The big fish tubs are completely lined
with layers of beautiful herring scales
and the wheelbarrows are similarly plastered
with creamy iridescent coats of mail
with small iridescent flies crawling on them.

By noticing the use of imagery throughout the poem, you might begin to sense its tone. What is the overall impression the imagery creates? In Bishop's poem, the "beautiful" and "iridescent" scales are later described as "sequins" and "the principal beauty" of the fish, all of which have positive associations. Noticing not only *what* you see (or hear, smell, feel, or taste) but also *how* you see it, you'll begin to make fuller readings of the poem.

Put Your Ear to the Line

Margaret Atwood wrote in "Reading Blind" that written words are "a score for voice," that "those little black marks on the page mean nothing without their retranslation into sound." This is especially true of poems, which often use sound for effect. You'll notice these effects best if you read the poem out loud.

Repeating sounds creates emphasis—when we hear something more than once, we're likely to pay more attention to it. In addition, when words are linked in sound, we're more likely to link them in meaning. When a poem rhymes, for example, our ears make connections between words. In Robert Frost's "Nothing Gold Can Stay," the lines are short (only four to six words each), so the rhymes are very noticeable:

Nature's first green is gold
Her hardest hue to hold.

The poem's paired end words—*gold, hold; flower, hour; leaf, grief;* and *day, stay*—emphasize the passage of time and the poet's attitude about it (*hold, hour, grief,* and *stay*) as well as what is lost as time passes (*gold, flower, leaf,* and *day*). The rhymes emphasize the connections among these words, which underscores the poem's principal message.

Don't stop with end rhymes, however; look inside the lines for sound repetition. In "Nothing Gold Can Stay," you'll find consonance, which occurs when two words share all the same consonant sounds but different vowel sounds: "So ***dawn*** goes ***down*** to day." Consonance is a

kind of slant rhyme; by not giving us an exact match, slant rhyme can convey opposition, negation, denial, or, as it does in this line, a let-down. Frost's poem also relies heavily on alliteration, the repetition of individual consonant sounds. In the first line, *green* and *gold* are alliterative, as are *Her, hardest, hue*, and *hold* in the second line. You'll also hear assonance, the repetition of vowel sounds: the long "e" sound is repeated in *green, leaf* (which appears three times), *Eden*, and *grief*. We can see a progression even in these four sound-related words: as the first three are lost with the passage of time, we're left with *grief*, which again reinforces the poem's meaning.

Examine the Structure

As you read more and more poems, train your ear to notice stresses and pauses. By controlling the placement of stressed syllables in combinations of words, poets can create a rhythm, as in these lines by Tennyson:

Break, break, break,
On thy cold gray stones, O Sea!

Read the lines aloud. Which words receive stresses? The stresses, which result from both the long vowel sounds and the punctuation, create a rhythm that helps to convey the sound of waves breaking on the rocks. The rhythm is forceful, unrelenting.

As you read a poem out loud, mark the stressed (′) and unstressed syllables (˘). If stresses and pauses occur in a regular pattern, you've probably encountered a poem in accentual-syllabic meter, in which line length is determined by the number of both stresses and syllables. If you don't notice a pattern emerging, see if line length is determined in another way. Perhaps the poet has counted only stresses (accentual meter) or only syllables (syllabic verse).

If the poem is broken into stanzas, groups of lines separated by white space, look for patterns such as stanza length and rhyme scheme. In "I Wandered Lonely as a Cloud," for example, the stanzas are sestets, rhymed stanzas of six lines each. These sestets follow a rhyme scheme of ABABCC, DEDEFF, GHGHII, JKJKLL. Just at the level of form, then, we know a lot about the poem: the lines are iambic tetrameter, the stanzas are sestets, and it has an identifiable rhyme scheme. The poem is written in a closed form.

Many closed forms, such as the sonnet, sestina, and villanelle, have long histories as well as strict rules. Much like a word's origin and history can give you greater insight into its meaning, knowing the history behind a form can provide additional insight into the meaning of a poem. On the other hand, a poet may create a form to fit the content of the poem. For instance, Sylvia Plath's poem "Metaphors" is nine lines long and each line has nine syllables. The poem is written in the voice of a pregnant woman; the form of the poem corresponds to the nine months of pregnancy.

Scanning a Poem

Scanning a poem means marking its stressed (′) and unstressed (˘) syllables. When you scan William Wordsworth's "I Wandered Lonely as a Cloud," you'll begin to notice a regular pattern:

I wandered lonely as a cloud
That floats on high o'er vales and hills,
When all at once I saw a crowd,
A host of golden daffodils,
Beside the lake, beneath the trees,
Fluttering and dancing in the breeze.

The meter is disrupted only in the last line, where the departure from the regular pattern helps convey the motion of the daffodils.

The pattern of stresses and pauses in this poem is predominantly iambic (˘′). Since there are four iambs in each line, the meter is iambic tetrameter.

Metrical Foot	***Mark***	***Example***
iamb	˘′	niCOLE
trochee	′˘	DENnis
anapest	˘˘′	saraJANE
dactyl	′˘˘	ANdrea
spondee	′ ′	JOHN DOE

Number of Feet	***Metrical Term***
one	monometer
two	dimeter
three	trimeter
four	tetrameter
five	pentameter
six	hexameter

continued on page 15

A Notebook of Questions:

A Summer Inquiry into Literature and Language

by Katy Wischow

That first night, after arrivals and non-arrivals, introductions and pizza, a brave soul said, "Let's talk about religion." So we did. Eighteen of us, participants in the 1997 Telluride Association Summer Program (TASP), trooped upstairs to a dorm room, squeezed onto beds, chairs, and the floor, and talked. I didn't know everyone's name, but I learned what they thought about God and prayer. Sometime after midnight, I went to bed, grinning all the way up the stairs at the promising start to the program.

The Telluride Association fosters intellectual communities in part by sponsoring free summer programs for rising high school seniors. Every summer, 15–20 students participate in each of four six-week programs held on college or university campuses. The competition for these programs is intense. Along with the usual transcript and recommendation, the application requires a list of books recently read, a short essay ranking seminar choices, and four long essays on topics such as future goals, a challenge faced, and a significant aspect of a book. The Association interviewed 150 finalists in March before making their selections.

I chose "Language and Literature," held at St. John's College in Annapolis, Maryland. I left for Annapolis a week after school let out, a bit nervous. I knew the program would center on language—how it relates to society, how accurate it is, how names gain meaning. One particular sentence in the program brochure attracted me the most: "Given that language is unavoidably the means by which we study language, how can the study of language be undertaken at all?" The course sounded intriguing and intensely intellectual. I wasn't sure I could read and write up to the expectations of the program, or up to the quality of my fellow TASPers. The formidable reading list I received when I arrived in Annapolis only added to my anxiety.

However, ready or not, I quickly fell into the program routine. On Mondays, Wednesdays, and Fridays, we discussed linguistic philosophy through texts by Plato, Aristotle, and Augustine up through modern writers such as Katz, Heidegger, and Foucault. Some, like Aristotle, were dense and difficult to navigate. Others, like John Austin and Ludwig Wittgenstein, met with great acclaim among the students. We devoted Tuesdays and Thursdays to in-depth readings of literary works; favorites included *Hamlet*, plays by Ionesco, stories by Borges, and a variety of poems.

I grew more confident in my abilities, not only those I had developed at home, but also others nurtured by TASP such as the ability to participate in a good discussion, synthesize ideas, read a lot of material closely, make connections, and speak assertively about my own thoughts.

After a week of classes, my anxiety subsided. I grew more confident in my abilities, not only those I had developed at home, but also others nurtured by TASP such as the ability to participate in a good discussion, synthesize ideas, read a lot of material closely, make connections, and speak assertively about my own thoughts. These qualities were strengthened in the seminar we attended for two hours each weekday morning.

Developed and led by two St. John's tutors, our program was heavily influenced by the St. John's College philosophy, which embraces the Great Books program; students at the college read primary sources in philosophy, science, language, and other subjects. My fellow TASPers and I were exposed to several of these texts as well as to other books. Our classes were run as open discussions with the tutors participating as fellow learners. In the St. John's tradition, we maintained a formal atmosphere by referring to each other as Mr. and Ms.

During the six weeks, we wrote two papers about topics inspired by any of the readings. My first paper attempted to answer the question Yeats posed in "Among School Children": "O body swayed to music, O brightening glance/How can we know the dancer from the dance?" by exploring it in light of some of the philosophers we read, particularly John Locke. I spent an entire weekend in a daze, obsessed with exploring the subtleties of this question. My second paper addressed the thorny problem of "ideal language." I came to a tentative conclusion that embraced precision in language, rather than perfection, looking at how works of literature would be affected by more or less precision. My tutor gave me detailed written comments as well as a half-hour conference on each essay. During the conferences, rather than pointing out the papers' flaws, the tutors addressed something they disagreed with or liked, and we had a discussion about the topic.

The best emblem of my experience at the St. John's TASP is a question mark. I asked more questions than I answered about philosophy and literature, language and life. When my essays ended with more questions than they had originally posed, my tutors just nodded and smiled. Now that the program is over, I have a notebook filled with scribbled queries, none of which has a tidy answer. How do you read literature? In interpreting a text, should you consider an author's life or the work only? How does a society use language? What does a society's use of language say about the society? What in life and in literature is truly amazing?

An endless series of question marks may not yield a neat term paper. But daring to ask questions that don't have answers provides an opportunity for intellectual stimulation that I feel incredibly lucky to have experienced.

Katy Wischow is a senior at the Governor's School for Government and International Studies in Richmond, VA. She is active in Odyssey of the Mind and drama, and is fascinated by language. You may email her at Indirabbit@aol.com if you have questions about TASP.

TASP course offerings have varied every year since the program began in 1954. Past courses have focused on such diverse topics as Politics of Culture; Science as Literature, Literature as Science; Cinema and Modernity; and The Experience of the Writer. The seminars, similar to upper-level college classes, are led by experienced college and university faculty.

Telluride Association selects high school juniors who may apply to the summer programs on the basis of PSAT scores or nominations by teachers or counselors. Applicants who are accepted to the program receive a full scholarship that covers tuition, housing, dining, and books. For more information, see the Telluride Association Web site at www.telluride.cornell.edu

Teachers and counselors interested in nominating students for TASP should contact Telluride Association, 217 West Avenue, Ithaca, NY 14850; (607) 273-5011.

How to Read a Poem *(continued from page 13)*

Again, don't give up if no patterns emerge. Many excellent poems aren't broken into stanzas, written in lines of set length, or arranged according to a rhyme scheme. Called free verse or open forms, these poems present unique pleasures and challenges to the reader, most notably at the level of line. If the lines aren't of set length, consider why the lines are broken the way they are. Perhaps the poet has broken lines at syntactical or grammatical pauses, to create rhythm, or even for visual effect. In any case, try to determine the relationship between form and content.

Seeing it Whole

While it's important to analyze the elements of the poem individually, you'll also need to consider the parts of the poem together, to notice how they work together to create the overall meaning of the poem. After you've read the poem several times, try to state the poem's theme—what the poem as a whole seems to say about its subject. How do form, sound, and imagery combine to support this theme?

In answering this question, keep in mind that a poem is more than the sum of its parts. Even after you've analyzed the elements, you might find that parts of the poem still defy explanation. Part of the allure of a good poem is its power to show us something new each time we read it.

And so, allow yourself some flexibility in your readings. There is no "right" interpretation of a poem. Because we all bring different experiences and perspectives to a poem, we'll interpret it in unique ways. So open a volume of poems and hear what they say to you. All you need is an open mind and a willingness to discover.

Figurative Language

While imagery can be created through literal description, poets often use figurative language to help create powerful images. Some commonly used figures of speech include similes, metaphors, and personification.

In a simile, the poet compares two unlike things using "like" or "as":

The dismantled, oily parts
of a machine laid out on rags
like a metal picnic

—Chase Twichell, "19 Lake Street"

A metaphor sets up an equation between two unlike things—it says that one thing is another:

As I walked out one evening,
Walking down Bristol Street,
The crowds upon the pavement
Were fields of harvest wheat.

—W.H. Auden, "As I Walked Out One Evening"

Metaphors may be implicit, not connecting the two objects with "is":

The yellow fog that rubs its back upon the window-panes
The yellow smoke that rubs its muzzle on the window-panes
Licked its tongue into the corners of evening

—T.S. Eliot, "The Love Song of J. Alfred Prufrock"

Personification is a type of metaphor in which human qualities are attributed to non-human things:

Peddling
From door to door
Night sells
Black bags of peppermint stars

—Frank Marshall Davis, "Four Glimpses of Night"

A Union of

Inspired by the contemplative wisdom of Indian and Tibetan monks and the fierce intensity of ancient Chinese warriors, the martial arts are a set of challenging practices through which you can develop your body, your mind, and the evolving union between them. We hope that this overview of these intriguing disciplines will encourage you to investigate one of them for yourself.

Karate, ***kung fu***, and ***tae kwon do*** are combative disciplines in which opponents deliver powerful hand and foot blows to defeat one another. *Karate*, the Japanese version of this art, is the most widely known and practiced; *kung fu* is a Chinese antecedent; *tae kwon do* is a Korean variation with a slightly greater emphasis on kicking. These disciplines incorporate numerous styles and sub-styles that feature different hitting and kicking strategies and distinctive approaches to technique, formality, ritual, strength, speed, and precision.

Aikido is a Japanese art that features sophisticated strategies for combating physical aggression. This practice exemplifies the martial arts' traditional focus on self-protection against an unprovoked attack. Opponents attempt to neutralize one another by moving their limbs in circles and then locking one another's joints by twisting wrists, elbows, and shoulders. *Aikido* incapacitates, but does not harm, an opponent.

Most of the martial arts have ancient historical origins. However, ***judo*** was developed by a Japanese teacher in the 19th century as a self-defense practice that would enhance physical conditioning. *Judo* embodies one of the key tenets of the martial arts: in physical combat, a relatively weak or small person can topple a more formidable opponent by using that opponent's weight and strength against him. Combatants grapple and make full-body throws to subvert kicks and hand-blows leveled against each other's weak spots. Learning to fall hard and fast is essential to the practice of *judo*, which today is practiced mostly as a sport on mats in special halls called *dojos*.

All of the martial arts are stylized, but perhaps the most ritualistic is ***kendo***, a variation on ancient Japanese swordsmanship in which opponents strike one another with long bamboo weapons wrapped in leather, or, while in training, with short wooden swords. Rivals in *kendo* formally call out and then hit target areas on their opponent's head, side, throat, or wrists. As you might imagine, protective clothing and equipment must be layered underneath and on top of the traditional flowing *kendo* costume.

The martial arts were conceived as war-like practices, but not all disciplines are combative. Students of ***tai chi chuan***, or ***tai chi***, perform beautiful sequences of slow-motion gestures. The sustained, full-bodied moves of *tai chi* are practiced not for self-defense, but for the development of flexibility, balance, coordination, and serenity. If you get up at sunrise and head out to a park or river's edge, you may see dedicated *tai chi* artists moving in silent unison, aligning their bodies and composing their minds in preparation for the coming day. You may even decide to join them. ■

Anisha stands in a guard with her sai

Slow-motion kicks, part of Anisha's intense physical workout

Karate: Developing Focus, Force, and Fitness

by Anisha Patel

From second through seventh grade, I watched my brother take karate classes while I waited for my gymnastics lessons to begin. I secretly harbored an interest in pursuing martial arts, and my brother taught me little bits and pieces of karate, using the living room as a makeshift *dojo*. When I entered seventh grade, my parents enrolled me in karate classes. At last, I was able to pursue karate seriously.

Years of gymnastics training had prepared me for the vigorous workouts of sit-ups, push-ups, and squats followed by practice sessions. But I was not expecting the level of intensity and the amount of mental focus karate training required. Because most techniques are never practiced against a person or pad, I had to envision my opponent and perform with the force I would use if my life were threatened. I had to focus all my energy on my target. Everything I did, from the fast-paced workouts to the traditional punches and kicks, required everything I had.

I have now been studying karate for five years. To advance in rank, I have had to learn both martial art and karate history. In addition, I must know the purpose of each movement I execute; simply to perform the moves without knowing their purpose is meaningless. When performing a block, I need to know if

Body and Mind

I'm blocking a punch or a kick and whether it is coming to my head or to my body. I need to know if my attacker is stepping straight at me or to the side. I need to understand why I am blocking with an open hand instead of a closed hand, or the side of the hand instead of the palm. All of these considerations allow me to perform the moves correctly and effectively.

The suansu, the most difficult move of kata

I am studying *Isshinryu* karate, which focuses on forceful straight kicks, blocks, and punches while protecting the body. There are no twist punches or high kicks because everything is done with the specific intent to hurt the opponent. A kick to the head is useless compared to a strong kick to the pelvis or to the knee. Depending on what kind of kick I am doing, I can kick through two or three wooden boards because I am able to put my body behind it. Similarly, the use of weapons is limited to forceful, purposeful movements; the types of weapons themselves allow no embellishment. The two main weapons are the *bo* (a long, straight stick about six feet tall) and *sai* (two matching metal swords with pointed tips). The *sai* are heavy and difficult to maneuver; I have dropped them many times—each time I was lucky they did not fall on my feet.

The kata chinto

As I've progressed through the different levels of karate, I've noticed the importance of mental acuity. For example, *kata* are series of moves that use a variety of blocks, punches, and kicks to defeat multiple imaginary opponents. These movements require incredible focus and intensity: I have to be able to put the movements together as if I were really fighting someone, as if my life depended on each kick, punch, or block. I imagine myself in the situation until I can almost see my opponents coming after me, kicking me, blocking my technique, and counterattacking. When watching people perform *kata*, it is easy to tell who is systematically defeating opponents and who is merely completing the motions. Look at their faces; look into their eyes: the concentration and fierceness are written boldly, as if carved in stone.

The ranking system for *Isshinryu* karate begins with tenth *kyu*. As the number of the *kyu* decreases, the rank increases. You start as a white belt and work your way up to a brown belt with two black stripes, or a first *kyu*. The next rank is the first degree black belt, which is my current level. A first degree black belt, or *shodan*, can work his or her way up to ninth degree, or *kudan*.

With each advance in rank, more benefits are derived from the martial arts. I have gained much from karate both physically and mentally. It provides a focus for my energy and an outlet for my frustration. There is no better way to relieve stress than kicking or punching a pad as hard as I can. It is also an excellent form of exercise because it requires both physical participation and mental concentration. I go into each class knowing that if I put everything into that class, I will walk out a stronger person.

The cat stance, using the bo as a guard

Getting my black belt was one of the greatest achievements of my life. After a full day of testing, which included running three miles, sparring five black belts in a row, breaking boards, performing all my *kata*, and using my weapons, I was able to see years of work come together. But my black belt was not the conclusion of my journey—it was only the beginning. ■

Anisha Patel is a senior in high school and plans to study chemical engineering in college. An avid tennis player, Anisha also spends much of her free time performing community service.

Anisha wishes to thank her senseis, John and Cindy Ingram.

On Linguistics, Patterns, and Passing French

by Brian Michalowski

Few of you have ever read this sentence before.

This may seem like a singularly uninteresting observation. However, what you did with that sentence is quite remarkable. By looking at a pattern of ink you'd never seen before, you let an idea that was in my head suddenly enter yours. What's more, you did it so quickly that you didn't even notice most of what happened.

Learning More Than You Were Taught

There are many things that native speakers of a language do without realizing—things they know that no one ever taught them. Go back and reread the first sentence of this article out loud. Go on, do it. If you're like me, you didn't pronounce the [t] in "sentence"; what you said sounded more like "sen-ns" than "sentens." In most dialects of English, the sound [t] turns into what is known as a glottal stop immediately before an [n]. (Glottal stops are commonly described as the consonant sound between the vowels in the word "uh-oh.") Similarly, you pronounce "kitten" as "kih-n" and "Clinton" as "clin-n."

The opening sentence of this article also provides an example of a rule of syntax you've never been taught: You know that you can use the word "ever" in the sentence "Few of you have ever read this sentence before" but not in "Many of you have ever read this sentence before." No one ever told you this, and if you asked your English teacher why you can use "ever" in the first sentence but not in the second, he or she probably won't be able to tell you.

The Search for Patterns

You may ask, "So how do I know this stuff?" This is one of the basic questions that linguistics, the study of language, tries to answer. Linguistics tries to discover how languages work, how people use language, and what the structure of language can tell us about the human brain.

By many accounts, there have been at least 8,000 different languages over the course of human history. They incorporate hundreds of different sounds (and movements, in the case of sign languages,) have wildly different word orders and grammatical constructs, and teem with idiosyncrasies. One of linguists' daunting tasks is to figure out what these languages have in common.

They have found a lot of similarities so far. Phonologists, who study the sounds used in language, have noticed that when two sounds need to be produced consecutively in the same area of the mouth (say, for example, [t] and [n]), people will often change one of them to make the word easier to pronounce. Although languages differ in what sounds cannot appear consecutively, speakers of different languages change sounds in similar ways to avoid forbidden combinations. Syntacticians, who study sentence structure, have noticed similarities in the way sentences are created in different languages. In all languages, words are built into phrases that are then built into larger phrases until a sentence is formed. Words may be positioned differently, but the way the phrases are combined is similar.

Some of the most interesting similarities occur in psycholinguistics, which examines how people acquire language and how the human brain processes language. People who study language acquisition have noticed that all babies babble when they're first learning language, even babies learning a sign language. Babies learning sign make random gestures resembling sign language just like babies learning speech make random sounds resembling spoken language. In fact, people learning any language go through similar stages. Linguistics provides constant reminders that the differences among people aren't as vast as they seem, which is one of the reasons I like studying it.

Psycholinguists also search for patterns in the way we process language. For example, most people can understand "After running a mile John was tired," but they will have difficulty with "After running a mile seemed like a long distance." It takes us a few rereadings to figure out that there's a pause between "running" and "a mile." (Note that this is not a punctuation error. This sentence does not need a comma any more than the sentence "After dinner John went dancing" needs one.) To learn more about language processing, psycholinguists equip test subjects with eye trackers and give them sentences such as these to pinpoint exactly where they get confused and start rereading the sentence.

Linguistics and Natural Language Processing

I first became interested in linguistics while taking a class in natural language processing during my junior year at the University of Maryland. Natural language processing (NLP) is a subfield of artificial intelligence that attempts to get computers to understand human languages. (It's called "natural language processing" to show that it isn't concerned with man-made programming languages such as C and Java.) NLP draws heavily on both computer science and linguistics; my class, which turned out to be one of my favorite classes at Maryland, focused on linguistics.

Natural language processing does have a lot in common with linguistics, but while linguistics focuses on how speakers create an utterance, NLP focuses on how to interpret the utterance that the speaker created. NLP is commonly used in natural-language interfaces, which allow people to interact with computers using their native language. Another application of NLP that I find interesting is machine translation, the subfield of NLP that explores how to automatically translate documents from one

language to another. Machine translation has received much more attention now that the World Wide Web has made information in many languages widely accessible.

Both linguistics and natural language processing have an ambitious goal—to analyze human language in all of its complexity. The variety in human language can seem bewildering, as any of you studying a second language have probably noticed. Linguists are doing their best to find the universal patterns, and while it won't necessarily help you do better on your French exam, it's nice knowing there's at least some order in the chaos.

If you're interested in the science of language, I strongly recommend the book **The Language Instinct** *by Steven Pinker. Pinker does a wonderful job of showing that linguistics is more than syntax trees and vowel charts. He spends a chapter covering each of the major subfields of linguistics, such as phonology, syntax, and psycholinguistics. He then uses the information presented in these chapters to argue that language is as much an instinct in humans as web building is in spiders. The book is a comprehensive and amazing work. The fact that it is sprinkled with quotes from such renowned experts as Woody Allen and Dave Barry helps. After all, linguists aren't the only ones who have discovered that language is fun to play with.*

Brian Michalowski is a math-geek-turned-computer-science-student-turned-wannabe-linguist. As a graduate student at the University of Washington, he is currently attempting to automatically interpret natural-language maintenance logs.

Intelligent Computers, Propp-osed

by Joseph Turian

Theoretically, if computer hardware were powerful enough, a computer could mimic human intelligence. From a purely biological standpoint, the human brain is just a massively parallel computer, the neural equivalent of a gargantuan super-computer with 100 billion Pentium processors. A human is roughly one million times smarter than the smartest computer. Makes you feel pretty good, huh?

Wait a second, you ask, if I am one million times smarter than a computer, then why can a computer beat me at chess and gnash numbers I can't conceive of for breakfast? Computer intelligence lies in precision. As long as a computer has exact instructions for performing a specific task, it can do that task pretty darn well. Perhaps human intelligence is an evolutionary compromise between ability and range.

In the long run, our inability to remember things perfectly and multiply with amazing grace may actually be a stronger form of intelligence than computerized perfection.

In the long run, our inability to remember things perfectly and multiply with amazing grace may actually be a stronger form of intelligence than computerized perfection. The human mind is rapidly able to assimilate and analyze novel situations by reasoning inductively from previous experience and knowledge. To create a sentence, we construct new ideas and new sentences from previous experience using memorized syntax, grammar, and vocabulary. So, using relatively few general rules, we are able to respond to specific circumstances with which we are unfamiliar.

It would be impossible for a human, let alone a computer, to memorize every possible circumstance in real life. Computers, like humans, need to sacrifice range in order to accomplish such real world tasks as understanding and creating speech.

The Syntax of Fairy Tales

For example, a computer program that creates traditional fairy tales could use a few general rules to generate a plot skeleton. Ideally, we would want the program to devise the general rules by itself through examining classic fairy tales. But we can also do this ourselves: by analyzing the structure of the tales, we can arrive at the general rules—a syntax for fairy tales. In fact, in *The Morphology of the Folktale*, Vladimir Propp constructed a sweeping syntax that characterizes the narrative structure of most fairy tales.

Intuitively we know that the hero does not first kill the dragon with the magical sword, then get the magical sword from the fairies in return for magic mushrooms, and finally search the forest for magic mushrooms. We know this story line is backwards not because we have read every fairy tale in existence and know that this story line does not belong to any of them, but because in reading a select few fairy tales we were able to extract the most important elements behind the interaction of story subplots. Propp set to paper the previously unconsidered structure of the fairy tale and demonstrated how complicated stories can be reduced to a concise syntax. He pioneered a method of analysis of the fairy tale by creating a universal grammar.

The grammar Propp created describes a fairy tale's plot as a series of components. Components are generic portions of the story that advance the plot in a specific way independently of the characters involved. For example, compare the following two events:

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Intelligent Computers, Propp-osed

(continued)

Two children are told by their parents to go into the forest ("Hansel and Gretel") and a girl is told by her mother to go to Grandma's house ("Little Red Riding Hood"). Both events are the same component, "interdiction" as Propp calls it. Both stories can be described as a sequence of components. The result of Propp's efforts was what he calls a tale's morphology: "a description of the tale according to its component parts and the relationship of these components to each other and to the whole."

Propp makes two interesting assertions that define the scope and possible depth of a fairy tale:

1. There are a finite number of functions with a finite number of ways that they interact.
2. For each fairy tale, there is one and only one functional description of the story.

Propp defines the 31 functions of the characters and describes them and their interactions. They include, for example, such components as *absentation* ("One of the members of the family absents himself from home"), *reconnaissance* ("The villain makes an attempt at reconnaissance [meeting the protagonist]"), *pursuit* ("The hero is pursued"), and *transfiguration* ("The hero is given a new appearance"). The descriptions are not always literal; for example, transfiguration could mean that the hero builds a palace with his newfound wealth.

From Morphology to Fairy Tale

To create a fairy tale from a morphology, a random ordered list of components that logically follow each other must be chosen. This will generate a functional skeleton. To create the plot from the skeleton, the functions must be elaborated, along with the actions of the characters within the functions. This will generate a plot. To create the story from the plot, the expanded functional formula must be translated to natural language (English), which is easier said than done! For a computer to produce a valid fairy tale, it would have to perform all these steps. It is generally viewed as impossible that a computer can create a plot, but Propp's methodology gives hope to the idea of fairy-tale-authoring computers.

It is generally viewed as impossible that a computer can create a plot, but Propp's methodology gives hope to the idea of fairy-tale-authoring computers.

In creating the morphology of the fairy tale, Propp anticipated what may be the future of thinking digital computers. A computer programmed to create stories based on the morphological functions could generate the plot skeletons of fairy tales ranging from those of the Grimm brothers to the *Arabian Nights*. It could also create stories never conceived of by any human that ever lived. Like the periodic table of Mendeleev, Propp's morphology finds a mysterious unity among seemingly dissimilar stories and identifies the logical gaps where there is a possible story that does not yet exist.

Currently a freshman at Harvard University, Joseph Turian enjoys breaking into his own computer system and writing short stories. He hopes someday to finish his sets and reading in time to go to sleep at a sane hour.

Once Upon a Time ... In the Future

Wonder what an AI-generated fairy tale might look like? Here's a sample plot skeleton, written in the program's syntax. While this story probably won't start a publishers' bidding war, just wait a few years. Computer-written formulaic stories aren't far off.

Abbreviations:
MC=main character
OC=Other character
VL=villain.

START

MC leaves home for a short time
MC is given an interdiction
MC violates the interdiction
VL enters
VL tries to find out information from MC using magic
VL finds out information from MC
VL tries to trick MC
MC succumbs to VL's deceit
MC lacks something
OC forces MC to agree to counteraction
MC departs
MC encounters VL
MC and VL struggle
MC is branded
MC loses the struggle with VL
MC returns home
MC is pursued
MC is rescued from pursuit
VL is punished

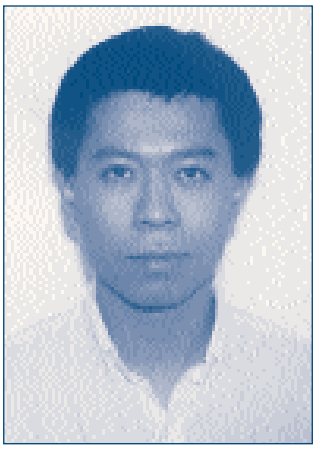
END

Exploring Career Options: Astronomy

Interview with Luis Ho

by Eileen Ptak

Dr. Luis Ho, an astronomer at the Center for Astrophysics at Harvard University, received his Ph.D. in astronomy from the University of California-Berkeley. In August 1998, he will join the staff at The Observatories of the Carnegie Institution in Pasadena, California. In this interview, Dr. Ho tells us about his search for black holes and for a stronger understanding of our place in the universe.



What do you do as an astronomer?

In general, astronomers try to determine the origin and nature of our universe. I study galaxies and black holes within galaxies. My interests center on how galaxies form, how they evolve, and why some galaxies contain black holes in their centers.

What are galaxies and black holes?

Galaxies are the main building blocks of the visible universe. They are each composed of approximately 100 billion stars bound together by their mutual gravitational attraction. Some galaxies have in their centers a very massive object known as a black hole.

The term "black hole" is a bit of a misnomer; it isn't a hole at all. It is an object whose gravitational pull is so strong that matter and light cannot escape. One type of black hole is formed from a star that collapses when its fuel runs out. Normally, the heat generated by the burning of a star's fuel provides a pressure out from the center of the star, which counteracts the inward pressure from gravity. If the fuel runs out, the star, if sufficiently massive, can collapse under its own weight.

Supermassive black holes in the centers of galaxies—the type I am studying—are formed in a very different way. We have several theories about how they might be formed, but we're not yet sure which is right.

What are some of the theories?

One theory is that supermassive black holes were formed shortly after the Big Bang. When matter was initially expanding, there were some wrinkles in space—uneven clumpings of gas. The biggest clumps might have collapsed in on themselves due to gravity and formed supermassive black holes.

Another idea is that they might have formed from individual stellar black holes—the type I described earlier. The centers of galaxies contain an enormous number of stars packed together in a tiny area. Under these conditions, stellar-sized black holes might merge together into one very massive black hole. They would condense there like heavy liquids settling at the bottom of a cup.

How do you detect a black hole?

Although black holes are, by definition, invisible, you can pinpoint them by trying to detect their gravitational influence on objects in their vicinity. Just as we could infer the presence and the mass of the sun, even if it were unseen, by tracing the orbits of the planets, we can deduce the existence of black holes by carefully measuring the motions of stars and interstellar gas clouds whirling around them.

What kind of data do you use?

I use data from many different telescopes around the world (Hawaii, New Mexico, Chile) and in space (the Hubble Space Telescope) to collect radiation from different parts of the electromagnetic spectrum, which ranges from radio waves to visible and ultraviolet light to X-rays. These data are used to determine the physical make-up and inner workings of the central regions of galaxies.

Have you always been interested in astronomy?

Well, I've always been interested in the "big questions." In high school I really loved cell biology. I participated in many science fairs, tinkered with just about anything that could be grown in my bedroom, and sought out various enrichment programs at universities during the summer.

As an undergrad at Harvard, I became more interested in wider philosophical issues: I was engrossed with philosophy, especially topics that attempted to address human nature and our place in the universe. I stumbled upon astronomy one day during my sophomore year at an informal seminar. I was convinced that I had finally found the grandest of the sciences, the noblest of pursuits.

You seem to be just as enamored of astronomy now as you were in college.

It is such an exciting field. Although it is an ancient science, it's also a very new field. Because so much is still unknown and progress is so rapid, I was confident that one person could make meaningful, lasting contributions to the field.

On one of the many nights I spent at Lick Observatory on Mt. Hamilton, near San José in California, I went outside my dome to inspect the weather. That night the air was exceptionally calm, the sky perfectly clear. Out in the distance stretched San José, enveloped in a canopy of orange glow emanating from the city's sodium lights. For the first time I realized how beautiful it was to hear absolute silence. The whole world was asleep—everybody except me. And I realized that I was in control of this mighty telescope. I can point it to any star, any

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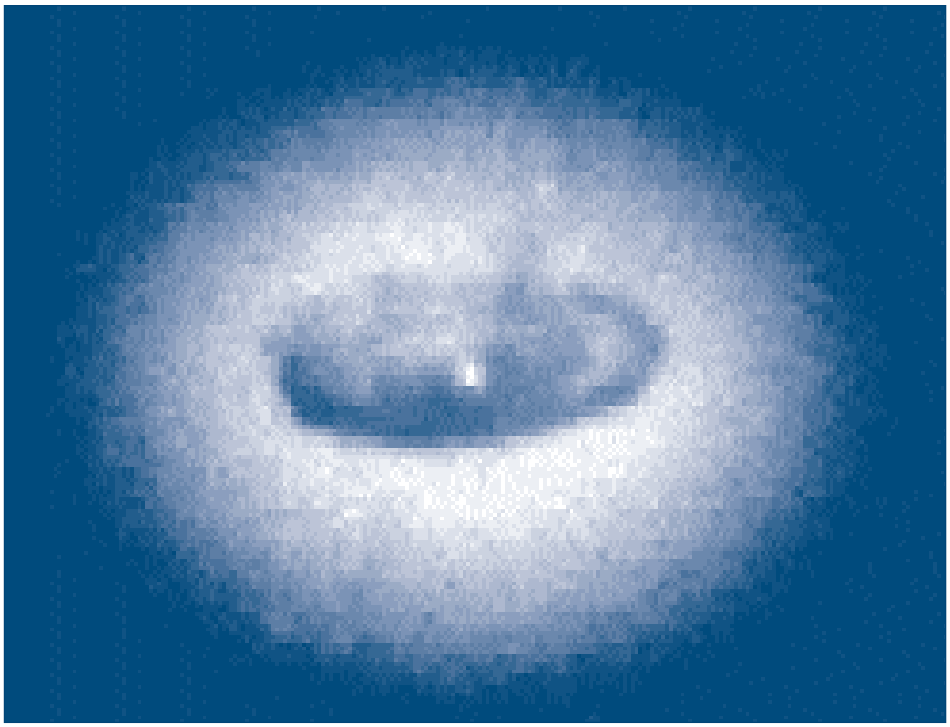


This picture of the center of nearby galaxy NGC 4261, taken by Hubble Space Telescope, shows a dark disk of gas and dust swirling around a massive black hole. Astronomers believe the disk is what remains of a galaxy that "fell in" or collided with the black hole hundreds of millions of years ago.

Courtesy of NASA, Hubble Space Telescope, H. Ford and L. Ferrarese of Johns Hopkins, and W. Jaffe of Leiden University.

galaxy I want. I can use it to peer into the outer reaches of the cosmos and ask all the big questions. What a wonderful privilege this is, I thought, and I still think so.

What did you study in college to prepare for your career?

I earned joint degrees in astronomy and physics. Astronomy requires a solid background in physics and mathematics. It is impossible to do serious research in astronomy without a thorough understanding of physics. Since I was taking so many physics courses anyway, I took a few extra to fulfill the requirements of the physics curriculum. Because I double-majored, I developed a broader understanding of electromagnetism, gravity theory, and classical and quantum mechanics, which were invaluable supplements to my studies in astronomy.

Did you get a chance to do any research while you were an undergraduate?

Yes, I was fortunate to have good mentors in college, and I took advantage of all the opportunities that came my way. By volunteering most of my free time at the university's observatory, I was able to work on research projects very early on. My most concentrated effort was to study the center of our own galaxy, the Milky Way, which we now know houses a supermassive black hole with a mass three million times that of the sun.

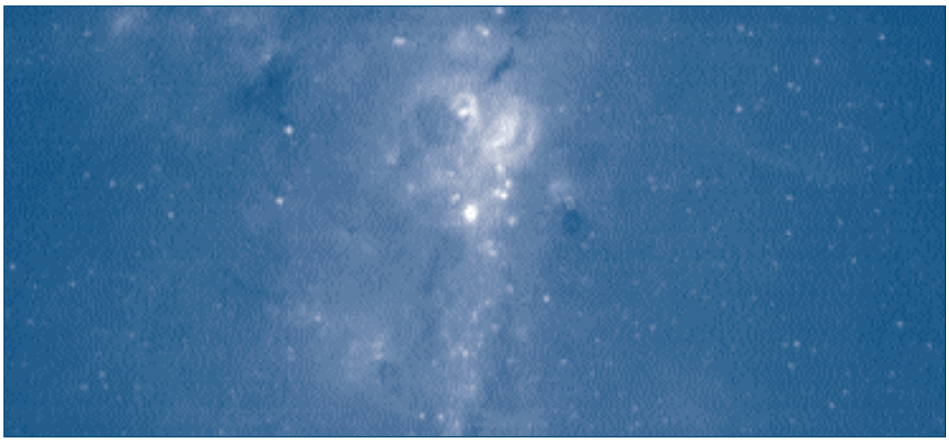
What projects are you working on now?

I am using the Hubble Space Telescope to image the centers of nearby galaxies and observe the effect that black holes have on their surroundings. I am also very interested in the starburst phenomenon, in which very large numbers of stars form over a short period of time in neighboring galaxies. Cosmic firecrackers, if you will.

What do you see as the most rewarding aspect of your career in astronomy?

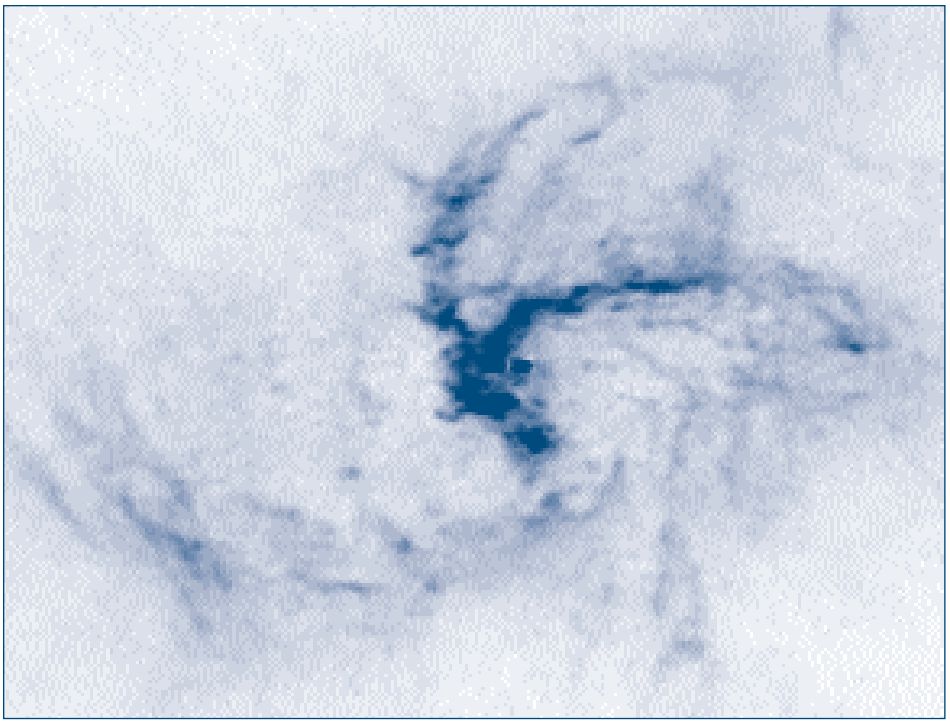
There are many aspects that are very satisfying, but perhaps the most rewarding is my complete independence in my work. One of the greatest satisfactions related to this independence is that I can honestly say that I've never really wanted to take a vacation! To me, there is no distinction between my activities at work and outside of work. My study of astronomy isn't limited to my office—it follows me home. Often I have dinner with it; I sleep with it; I dream about it; I wake up with it. Sometimes I am so engrossed with a particular problem that it stays on my mind for days on end.

I also travel quite a bit—sometimes to very remote parts of the world—to collect data and attend conferences. I just spent two weeks in Japan, and I'm going to India



At the center of our galaxy lie young stars, dust clouds, swirling rings of gas, and a supermassive black hole. This photo of the center of the Milky Way was taken by the SPIRIT III telescope in infrared light, because intervening dust and gas would obscure our view in the visible wavelengths.

Courtesy of S. Price et al., of Phillips Lab, CBE, MSX, and the US Air Force.



A supermassive black hole lies within the constellation Sagittarius at the center of our Milky Way galaxy. This image, taken at radio wavelengths, shows gas spiraling into the black hole.

Courtesy of F.Yusef-Zadeh of Northwestern University.

shortly to attend a month-long workshop on black holes.

As much as I love what I do, I also feel I have a tremendous responsibility to society. Scientists have an obligation to the public at large: to inform, to educate, and to inspire.

What do you think is the most exciting facet of astronomy?

The fact that the whole field is making advances at a dizzying pace. We are fortunate to be living in an era of technological explosion, and as a result, telescopes that are more powerful than ever are sprouting up across the globe, and others are being prepared to be launched into space. In this way, the oldest of the sciences continues to renew itself. ■

Selected Resources

Ferris, Timothy. *Coming of Age in the Milky Way.* New York: Anchor Books, 1989.

Gribbin, John R. *Unveiling the Edge of Time: Black Holes, White Holes, Worm Holes.* New York: Crown Trade Paperbacks, 1994.

Hawkins, Michael. *Hunting Down the Universe: The Missing Mass, Primordial Black Holes, and Other Dark Matter.* Reading: Addison-Wesley, 1997.

Longair, Malcolm. *Alice and the Space Telescope.* Baltimore: The Johns Hopkins University Press, 1989.

Being Grammatical *(continued from page 10)*

were once condemned are now considered acceptable.

For example, you're not likely to hear "It is I" or "For whom is it?" on television. Even though the phrases "It is me" and "Who is it for?" are grammatically incorrect, they are largely accepted today. Rules that prohibit ending sentences with prepositions and splitting infinitives have been also loosened somewhat. As Jonathan Freeman notes in the interview on page 11, no one would ever say, "Your behavior is something up with which I will not put."

E.B. White, in his addition to William Strunk's *The Elements of Style*, notes that you can use your ear to make good judgements. But first you'll need to grab a grammar guide and learn the correct way to write and speak. As White said, you must know the rules of grammar before you can violate them successfully because "only a writer whose ear is reliable is in a position to use bad grammar deliberately." ▨

Selected Resources

Gordon, Karen Elizabeth. *The Deluxe Transitive Vampire: The Ultimate Handbook for the Innocent, the Eager, and the Doomed.* New York: Pantheon, 1993.

O'Conner, Patricia T. *Woe is I: The Grammarphobe's Guide to Better English in Plain English.* New York: Putnam, 1996.

Related Web Sites

Common Errors in English
www.wsu.edu:8080/~brians/errors/index.html

Grammar and Style Notes
www.english.upenn.edu/~jlynch/grammar.html

Online Writing Lab
www.english.purdue.edu

FASCINATING CLASSICS

My Ántonia

by Willa Cather

Review by
Lesley Mackay & Kimberly Nolan

Lesley: American literature is full of immigration stories, from tales of colonial war, such as James Fenimore Cooper's *The Last of the Mohicans,* to contemporary accounts of immigrant life, such as *The Joy Luck Club*. The story of navigating an unfamiliar and somewhat hostile environment is the human story magnified: we all must cope with the unknown and, at least from time to time, with adversity.

Willa Cather's 1918 novel, *My Ántonia,* describes the coming-of-age of a young city girl from Bohemia, Eastern Europe, as she courageously masters life on the Nebraskan plain. Ántonia Shimerda's heroic story is told by Jim Burden, an orphan who lives on his grandparents' farm, which neighbors the Shimerdas' squalid earthen dugout.

Kimberly: The novel is set in Nebraska, but Jim and Ántonia meet before they set foot in that state, on a train trip across the country. Jim, 10, has just lost his parents and left his native Virginia to be united with his grandparents. Ántonia, 14, has just come "across the water" with her family in search of opportunity on a new continent. The land that Jim and the Shimerdas finally encounter is stark and unpopulated; Jim describes it as "not a country at all, but the material out of which countries are made."

By having Jim and Ántonia voyage out West together, Cather establishes their intertwining, both in life and in their story. Jim is the narrator and principal male character, but his presence in the novel is far from overbearing. Jim depicts himself as living vicariously through others, especially Ántonia, and he reveals that *his* coming-of-age was powerfully shaped by the more dramatic characters around him.

Lesley: I agree, Kimberly. Although Jim lacks Ántonia's striking presence, he pervades every page of Cather's book. Reading the novel, I was also struck by some more basic differences between the two young people. Jim's family runs a successful farm, while Ántonia's struggles to survive. He attends school and then Harvard, while she speaks broken English and works in the fields or in other people's homes. His grandparents are confident, successful farmers, while her father, a violinist, is undone by the plains, and her mother is embittered by hardship.

Kimberly: Yes, Jim and Ántonia come from two seemingly alien worlds. Yet they share a sense of loyalty and an appreciation of their rural environment and the values it inspires. Through these common traits, the two form a lasting connection.

Lesley: Their ability to surpass their differences is illustrated early in the novel. In one scene, Jim, his grandmother, and a hired hand visit the Shimerdas for the first time, finding them bewildered and hungry. However, Jim, Ántonia, and her little sister exuberantly run out that morning to play:

> *We raced off toward Squaw Creek and did not stop until the ground itself stopped—fell away before us so abruptly that the next step would have been out into the tree-tops. We stood panting on the edge of the ravine, looking down at the trees and bushes that grew below us. The wind was so strong that I had to hold my hat on, and the girls' skirts were blown out before them. Ántonia seemed to like it; she held her little sister by the hand and chattered away in that language which seemed to me spoken so much more rapidly than mine. She looked at me, her eyes fairly blazing with things she could not say.*

From the first pages of the book, Ántonia is shown to be inspired by the magnificent Nebraska landscape. Her affinity for the plains and Jim's appreciation of her earthiness provide the basic texture of the novel.

Kimberly: And Ántonia's love for the land generates the novel's essential drama: achieving transcendence through work. Work, especially the work of women, is held in high regard throughout *My Ántonia*. Cather introduces several industrious female characters, from the busily domestic Mrs. Burden, Jim's grandmother, to the immigrant girls who work in Black Hawk, to established career women who manage family businesses or start their own successful enterprises.

While all of the novel's women are important to Jim, Ántonia stands as his powerful prototype for the working woman. As a young girl, she hires herself out as a laborer at neighboring farms, joining her brother Ambrosch in the threshing and harvesting that her father is too delicate to do. Then, in her late teenage years, she accepts employment as a domestic servant in the small town of Black Hawk, where she refines her housekeeping skills, learns the ways of society,

Willa Cather: Writer of the American Plains

What inspired Willa Cather to create a set of highly individualistic and independent female characters like the radiant, self-assured, and hard-working Ántonia Shimerda? Why, her own life, of course.

Born in 1874 in Virginia, Cather, like Jim Burden, was transported to Nebraska as a child. Bold and outspoken, the young girl tussled with her gender, cutting off her hair, wearing androgynous clothing, and signing her name on occasion as "William." Brainy and inquisitive, she chose adult companions and anticipated a fabulous career as a surgeon.

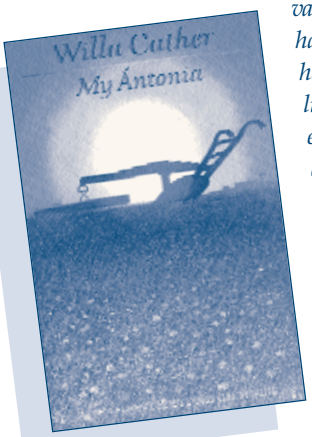
Upon finishing high school, Cather insisted on going to college, a path not typically taken by the young women of her day. She entered the University of Nebraska in Lincoln intending to study medicine. However, after an English professor sent one of her freshman essays to Lincoln's most widely read newspaper and it was published, she decided to become a writer. Prolific from the start, Cather penned half a million words of criticism for the *State Journal* while completing her undergraduate work.

After college, Cather's path toward literary fulfillment was

and at times rejects those ways. Not surprisingly, she one day returns to the plains.

Lesley: Ántonia's acceptance of a life of labor creates a rift between her and Jim. After she turns 15, he asks her to consider attending school, and she offers him a complex reply:

> *"I ain't got time to learn. I can work like mans now. My mother can't say no more how Ambrosch do all and nobody to help him. I can work as much as him. School is all right for little boys. I help make this land one good farm."*
>
> *She clucked to her team and started for the barn. I walked beside her, feeling vexed. Was she going to grow up boastful like her mother, I wondered? Before we reached the stable, I felt something tense in her silence, and glancing up I saw that she was crying. She turned her face from me and looked off at the red streak of dying light, over the dark prairie.*



Kimberly: Jim's reflections on this moment provide several insights. Jim reacts more to Ántonia's description of him as a boy than to her rejection of schooling. In his indignation, he mistakes her stoicism for pride. Ántonia seems quite certain that she is making the right decision in passing up the opportunity to study. Yet Jim notices, but perhaps does not understand, a poignant sign of her recognition that she has suffered a loss.

Lesley: Jim isn't always sensitive to Ántonia's losses. And, like his grandparents and their hired men, he sometimes seems indifferent to the troubles that afflict the immigrant families and a little judgmental of their different cultural ways. This bothered me on occasion as I read the novel.

Kimberly: More positively, though, the Burdens exhibit the self-reliance that is an important, evolving theme in the novel. *My Ántonia* expresses that the prairie will break those who cannot survive without assistance—this is an impersonal process of nature, not a phenomenon that derives from human prejudice. Mr. and Mrs. Shimerda fail to hold their own on the plain, so the task of ensuring family survival falls to their children.

Lesley: I think you're right, Kimberly. It's valuable to look at the novel as a product of its own era and that era's tough realities. For example, *My Ántonia* affirms that female children bear a responsibility to support their families. Cather not only shows Ántonia laboring in the fields, but also, in the later section "The Hired Girls," shows several young immigrant women working in town to earn money for their parents and siblings. The girls' dedication to their families exemplifies the reality principle that dominates the novel: Circumstances cannot be ignored; burdens must be shouldered. Nonetheless, the girls' dedication brings them unforeseen personal rewards. Jim remarks that they

> *. . . had grown up in the first bitter-hard times, and had got little schooling themselves. But the younger brothers and sisters, for whom they had made such sacrifices and who have had "advantages," never seem to me, when I meet them now, half as interesting or well educated. The older girls, who helped to break up the wild sod, learned so much from life, from poverty, from their mothers and grandmothers; they had all, like Ántonia, been early awakened and made observant by coming at a tender age from an old country to a new.*

Kimberly: Through Jim's observations, I think that Cather redefines the roles of girls and women and creates a startling vision of what they are able to achieve. Lena Lingard, Tiny Soderball, the two Bohemian Marys, and Ántonia—none of them depends on a man for support nor relies on that future possibility. Neither Lena nor Tiny marries; both become successful businesswomen and entrepreneurs. And although Ántonia marries and has 11 children, she also assumes leadership in running the family farm with her husband; the novel's final section clearly indicates that she has taught him how to get the most from the land.

Lesley: Jim constantly reaffirms his admiration for these female characters. It almost seems odd that he doesn't marry one of them. In the end, though, he seems to judge them as unsuitable for marriage to a Harvard-educated lawyer.

Kimberly: I know what you mean, Lesley. It originally struck me as one of the novel's shortcomings that Cather did not further integrate the adult lives of Jim and the immigrant women. Instead, she concludes her book with Jim and Ántonia briefly reuniting after a 20-year separation. Sensing that something is missing in his life, that he has perhaps made some unfortunate choices, Jim relocates Ántonia and, in so doing, seems both to find and to complete himself. The warmth of childhood radiates through his final reflections:

> *I had the sense of coming home to myself. . . . For Ántonia and for me, this had been the road of Destiny, had taken us to those early accidents of fortune which predetermined for us all that we can ever be. Now I understood that the same road was to bring us together again. Whatever we had missed, we possessed together the precious, incommunicable past.* ■

long and not entirely smooth: she published her first novel at 38 after years of writing for newspapers and magazines. She crafted some short stories during her years of news-writing—stories that reflect her admiration for the works of Henry James. Cather never gave up the mood of exile and elegy that she inherited from James, but when she began setting novels in the prairie communities of the American West, she assumed her own unique voice.

Before her death in 1947, Willa Cather wrote several novels, works that were lauded and rejected and lauded again for their portraits of ordinary people visited by transcendent emotions in landscapes of remote beauty and awesome power.

Upcoming Fascinating Classics:

John Steinbeck, *The Grapes of Wrath*
Virginia Woolf, *To the Lighthouse*
Ernest Hemingway, *The Old Man and the Sea*

The College Review Series is intended to aid prospective college students in their search by offering insiders' views of selected colleges and universities, as expressed by current undergraduates or recent graduates who have high academic ability. Note that the number of reviewers is small. Consider their personal perspectives as only one component as you gather information and impressions from many sources.

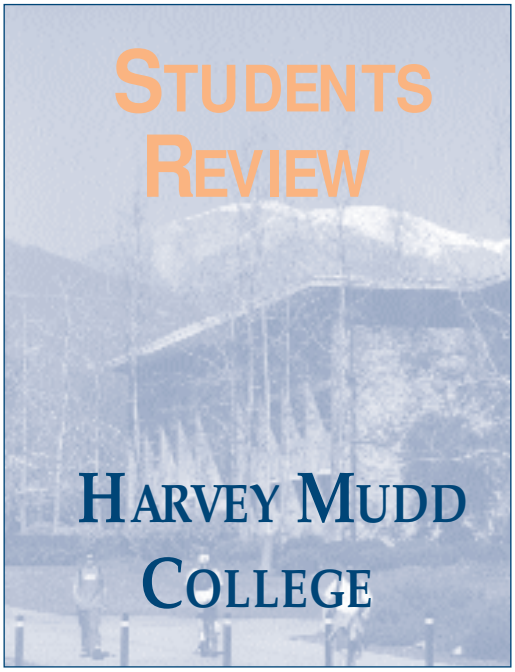
Our reviewers include fifteen students, who major(ed) in biology (3), classics* (1), chemistry (3), economics* (1), engineering (2), literature* (1), math (9), and physics (2). (The number of majors exceeds fifteen because seven reviewers completed two majors.) Majors marked with an asterisk were completed at one of the other Claremont Colleges.

Quality of Academic Instruction for Undergraduates

For students who want a first-rate technical education, a small-college environment, and access to excellent liberal arts courses, Harvey Mudd offers a unique opportunity. It's one of the Claremont Colleges, an educational consortium of five adjoining schools, each with a different emphasis. Offering only six majors—biology, chemistry, computer science, engineering, math, and physics—Mudd has one of the best reputations in the nation for educating top math, science, and engineering students.

"Undergraduate education at Mudd is superb. The professors are generally the best that can be found anywhere, a fact that became quite clear to me once I began graduate school. I had come to take for granted a level of teaching ability and dedication to students that is extremely rare. Since Mudd is part of the Claremont Colleges, a vast selection of high-quality professors can be found in all subject areas—and all within a five-minute bike ride."

"The quality of instruction is incredibly high. Mudd has only undergraduates, so faculty concentrate on teaching more than on research. Profs are extremely accessible and strongly committed to creating a challenging, rewarding undergraduate environment. In addition to all that Mudd offers in math and science, students can draw upon the academic resources of the other Claremont Colleges for breadth."



Students Review

Harvey Mudd College

"With only 150–170 students per graduating class, Mudd provides an intimate learning environment. Freshman chemistry and physics lectures include the entire freshman class, but labs and recitation sections have no more than 20 students. Most other classes range from 15–40 students; some upper-level classes have only two or three students. Grading is tough but fair."

"The heart of a Harvey Mudd education is the rigorous Core curriculum, which provides a strong and broad science background: four semesters of math, three of physics (plus two of physics lab), two of chemistry (plus two of chem lab), and one each of biology, computer programming, and systems engineering. For the first three semesters, all students take roughly the same courses, ensuring that everyone has a basic understanding of most science before specializing. The Core is extremely coherent; I often found myself making connections between topics being covered in completely different classes. Mudd students are also required to take twelve humanities courses—an unusually large number for a science school."

"The first three semesters are one colossal shared experience, giving everyone the sense of surviving a challenging rite of passage together. Staying awake until two in the morning doing frosh chem problem sets may be miserable, but enduring bonds are forged in those late-night problem sessions."

"If broad swaths of science have the power to enthrall you, the Core is a great thing, but it's not for everyone. It affords students little freedom of choice during the first three semesters; you can't really avail yourself of the breadth of offerings at the other Claremont Colleges until your final two years."

"The Core is a very big deal at Mudd. We complain about it, but because of it, we are truly well-rounded scientists. It prepares us to do interdisciplinary work and to perceive interdisciplinary connections—to be the prepared minds favored by chance."

"The course load is heavy. Mudd students must average five courses plus labs per semester in order to graduate. Six courses is not considered an overload. In contrast, students at the other Claremont Colleges average a four-course load. The attitude is very much in favor of biting off more than you can chew, then dropping a course or two if need be; but many ride it out."

"Mudd's Honor Code is taken very seriously. The trust it engenders between students and faculty makes it possible for professors to assign timed, closed-book, take-home exams which students can complete at a time and location convenient for them."

"Because of the five-college consortium, we have access to resources that would normally be found only at a much larger school. The most essential resources are right on campus, including the main science library for the five colleges and Mudd's computing facilities."

Social Life

Reviewers spoke warmly of the social life.

"Students here tend to be individualistic and creative; being around such people is inspiring. Extracurricular life is amazingly lively given the amount of work we subject ourselves to. All the standard activities are available—chorus groups, theater, film, dorm events, ethnic organizations, religious life. Some groups, like the unicyclists and jugglers, are distinctive to Mudd, while others draw from all five colleges."

"Almost all students live on campus, creating a very strong sense of community. Everyone looks out for each other in a caring but not intrusive way. Informal social opportunities abound; at any hour, you can find something interesting going on just by wandering around the residential part of campus. Many students take advantage of the southern California climate and frequently

leave their doors open, contributing to an overall friendly atmosphere in the dorms."

"Mudders tend to have a slightly warped sense of humor. We're sometimes described as the geek school of the five colleges, but we think this is just because they don't understand our jokes! We also have a tradition of non-malicious pranks. Displays of creative exuberance provide a good way to release the stress that comes with having to do so much work."

"The other Claremont colleges provide a good mix of people and activities. There's always something to do on campus—if you have the time. Plays, concerts, movies, and five-college parties and events occur frequently, while all sorts of sports activities and facilities can be found at Claremont McKenna College, a five-minute walk."

"The 3:1 male-to-female ratio can be a bit frustrating, but taking courses at the other colleges and making an effort to meet people on the other campuses can alleviate this strain."

"Claremont is 45 minutes from downtown Los Angeles, Hollywood, beaches, and skiing in the winter. There's great rock-climbing less than two hours away in the desert, and biking trails are everywhere. Claremont itself is a very safe little suburb, if a tad boring."

What Do You Like Best about Mudd?

Reviewers appreciated the school's challenging yet strongly supportive environment.

"The learning is intense, but the pride you feel after completing a semester is immense. The support network is also extraordinary. Nobody wants you to fail—there is no intentional weeding out. Tutors and friends are everywhere, and professors' doors are always open."

"Mudd brings together hundreds of excellent people and provides them with great opportunities. Senior year, I took six courses each semester, acted in three plays, wrote an English thesis through Scripps College, and completed a math project. I was busy every moment of the day, yet was energized and happy because I thoroughly enjoyed it all."

"The Honor Code permeates all aspects of Mudd life, and we uphold it devotedly. The professors trust us, and the students trust each other. We can expect certain levels of conduct from people we've never met simply because they are Mudders. The openness this leads to is remarkable."

What Do You Like Least about Mudd?

The air pollution and the strain of the academic demands were the major complaints.

"Claremont has some of the worst air quality in the nation during the summer, and spring and fall have many bad days. The prevailing winds collect all the smog from the Los Angeles basin and funnel it along the San Gabriel mountains just north of Mudd. It's not fun for anyone, let alone people with asthma or allergies."

"Mudd is tiring. After countless all-nighters and years of overloading on courses, I was pretty worn out. I learned a tremendous amount, but I just wasn't ready to attack grad school with the same level of dedication after working to my limits for four years at Mudd."

"Mudd is a very demanding place, both academically and personally. It's entirely possible to enjoy and even love Mudd despite this; I do. But anyone prone to health problems—physical or mental—may find them aggravated here."

Harvey Mudd College

Claremont, CA 91711
(909) 621-8011

- 4-year private coed college.
- Suburban campus 30 miles east of Los Angeles.
- Full-time undergraduate enrollment 1997–98: 494 men; 158 women.
- Special features: Member of a five-college consortium, the Claremont Colleges. The other colleges are Pomona, Pitzer, Claremont McKenna, and Scripps Colleges.

Who Would Be Most Compatible with the Academic and Social Atmosphere at Mudd?

"The average Mudder is brilliant, honest, down-to-earth, warped (in terms of sense of humor), and willing to work on homework every night until 1 a.m. We watch The Simpsons religiously and are more apt to fight over Mac versus PC than Republican versus Democrat. We often discuss physics over breakfast and have been known to pull brilliant practical jokes on our rival school in Pasadena."

"Someone who is completely committed to studying science or engineering—because there's nothing else to major in—but who also enjoys humanities, which make up a significant portion of the graduation requirements. Anyone interested in science alone probably isn't as suited to the Mudd culture, which is enriched by the broad interests of the students and faculty."

If You Had It to Do Over Again, Would You Go to Mudd?

All but one reviewer enthusiastically said yes.

"Absolutely. Having four years of personal attention from brilliant, caring professors during those critical undergraduate years was invaluable. I got the best education I could have gotten and met more outstanding people than I have at any other time or place."

"Undoubtedly. Despite the stress, I love the feeling of being challenged to the limits of my ability. I love the people—brilliant, eclectic, talented, compassionate, fascinating. Here I am finally free to be the person I was at CTY but could never be in my hometown."

"Yes! The only thing I'd do differently would be to accept the offer immediately. Going to Mudd was the best decision I ever made, period."

"No. Mudd's focused curriculum didn't give me enough latitude to change my mind—which I did. I decided (too late to transfer) to major in economics. I was able to do so at another Claremont College, but I had to complete a minor in biology to graduate from Mudd."

As you try to find the college or university best suited to you, the views presented above may be helpful. Keep in mind that these students might have had similar positive or negative experiences had they attended a different school. At any college, it is important to seek out challenging academic experiences and to create a social life that fits your personal style. ■

Note: The students quoted in the College Review Series are expressing their own views, which are not necessarily those of JHU or IAAY.

PLANNING AHEAD FOR COLLEGE

High School Extracurricular Activities

by Linda E. Brody, Ed.D.

Savvy students know that good grades and test scores aren't enough to gain admission to a highly selective college or university. Colleges also seek students who have excelled in extracurricular activities. Thus, students who are worried about college admissions often frantically join any groups they can during their last year or two of high school. But you aren't likely to fool admissions officers by padding your résumé. As Paul White, Director of Undergraduate Admissions at Johns Hopkins, said in an interview that appeared in the September/October 1996 issue of *Imagine:*

> *[At Hopkins] we're looking for students who have shown a sustained commitment to their interests, both academically and extracurricularly… So don't show me a laundry list of activities where you've hopped around so much I can't really get a sense of who you are. And don't give me one that suddenly expands when you're in twelfth grade, because I'll know you're only doing those things because you feel you have to.*

Why are colleges interested in activities, anyway? Why aren't grades and test scores enough? Colleges that have more highly qualified applicants than they can admit seek academic high achievers who have also demonstrated an eagerness to challenge themselves beyond the high school curriculum. They look for people who will bring their interests to college and join campus or community activities. They want students who have shown initiative and commitment and who have developed good interpersonal and leadership skills.

Choosing Activities

Which activities should you join? And how many? Although there are no clear right or wrong answers to these questions, these guidelines might help.

- *Explore your interests early; then focus on developing one or two strong interests.* Middle school is a time to investigate new opportunities. Get involved in a variety of activities. When you've identified the type of activity you find most satisfying, seek a number of ways to become more involved in that area. As you move through high school, the number of areas you participate in should diminish as your involvement in one or two increases substantially.
- *Don't limit your choices to school-based activities.* You can become involved in anything that helps you develop a skill and grow as a person. You might enjoy school activities such as sports, writing for the newspaper, or student government; an independent hobby such as scuba diving, poetry writing, or wood working; or religious activities, community service, or a paid job. Plan your summers wisely to include endeavors that enhance your learning, whether you're in a classroom or an office, at home or traveling to another country.

  Ideally, consider in- and out-of-school activities that complement each other. So if math is your thing, don't limit yourself to joining the school math team. You can also take the American High School Math Exam, work with a tutor on a math project for the Westinghouse Science Talent Search, and maybe tutor disadvantaged kids in math. If your interests lie in politics, join the student government. But also volunteer in a political campaign, do an internship for a state senator, and work to improve something in your community. Becoming involved in more than one activity shows that your interest in an area is genuine.
- *Pursue opportunities for leadership and recognition.* Once you've decided to commit yourself to one or two areas, strive to achieve distinction. Seek a variety of ways to become involved, and work for prizes, awards, and positions of responsibility.

When It's Time to Apply

As you list activities on your college application, group together those that complement each other so your strong interest is apparent; also be sure to include honors, leadership positions, and other indices of high achievement. If your list doesn't adequately portray the degree of your involvement, you can also do one or more of the following:

- *Write your application essay about your area of interest.* Describe what you've learned from your involvement and how it's made you a better person. Relate this knowledge and growth to your plans for the future.
- *Seek a recommendation from someone familiar with your extracurricular activities.* If a teacher knows about both your academic and extracurricular work, ask for a recommendation that encompasses both areas. If appropriate, a recommendation from someone outside of school who is familiar with your efforts may be sent with your application.
- *Submit products of your work.* Demonstrations of talent that cannot be shown in other ways on your college application, such as poems, an original math proof, or a tape of a musical performance, are appropriate supplements to your college application. But keep them short because admissions officers are limited in the amount of time they can spend on one student's application.

Activities are an important part of your high school experience—and not just for the purpose of getting into college. They extend your learning beyond the classroom, so choose them as carefully as you do your courses. And work to excel in them, just as you do in your courses. The colleges to which you apply are likely to be impressed by your efforts and accomplishments in all areas. ■

THE COACH'S CORNER

by Chengde Feng

Mr. Feng teaches mathematics at the Oklahoma School of Science and Mathematics (OSSM) and has coached many students who have competed successfully in mathematics contests in China and the U.S. In this column, Mr. Feng offers Imagine *readers questions designed to improve their problem-solving skills.*

PROBLEMS

1. Find the value of k such that $6x^2 - 5xy - 4y^2 - 11x + 22y + k$ can be factored into two linear expressions.

2. Find the area of the region whose points (x,y) satisfy $|x| + |y| + |x - y| \le 2$.

3. f(x) and g(x) are two functions defined on the set of real numbers, satisfying that (I) f(0) = 0; (II) g(x – y) = f(x)f(y) + g(x)g(y) for all real numbers x and y. Show that $[f(x)]^{1998} + [g(x)]^{1998} \le 1$.

SOLUTIONS

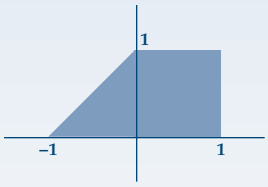
1. Suppose that $6x^2 - 5xy - 4y^2 - 11x + 22y + k = (2x + y + m)(3x - 4y + n)$.
Then $6x^2 - 5xy - 4y^2 - 11x + 22y + k = 6x^2 - 5xy - 4y^2 + (3m + 2n)x + (-4m + n)y + mn$.
Equating coefficients in both sides gives $3m + 2n = -11$, $-4m + n = 22$, and $mn = k$.
Solving the system of equations yields $k = -10$. ($m = -5$, $n = 2$)

2. Since the region whose points satisfy $|x| + |y| + |x - y| \le 2$ (*) is symmetric with respect to the origin (why?), we consider first the points in the first and second quadrants.

(I) In the first quadrant where $x \ge 0$ and $y \ge 0$, (*) is reduced to

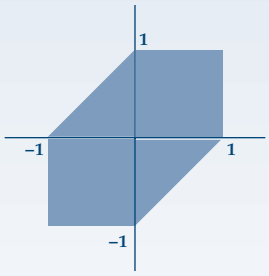
$$\begin{cases} x \le 1, \text{ if } x - y \ge 0 \text{ (or } x \ge y) \\ y \le 1, \text{ if } x - y < 0 \text{ (or } x < y) \end{cases}$$

(I) (II) $\Rightarrow$ The part of region whose points in the first and second quadrants looks like:



(II) In the second quadrant where $x \le 0$ and $y \ge 0$, (*) takes the form $y - x \le 1$;

By symmetry with respect to the origin, the region whose points satisfy (*) looks like:



$\Rightarrow$ The area of the total region is 3.

3. Proof: Setting x = y, then $[f(x)]^2 + [g(x)]^2 = g(0)$.
Substituting x = 0: $[f(0)]^2 + [g(0)]^2 = g(0) \Rightarrow [g(0)]^2 = g(0) \Rightarrow g(0) = 0$ or $g(0) = 1$.
If $g(0) = 0$, then $[f(x)]^2 + [g(x)]^2 = 0 \Rightarrow f(x) = g(x) = 0 \Rightarrow [f(x)]^{1998} + [g(x)]^{1998} = 0 \le 1$.
If $g(0) = 1$, then $[f(x)]^2 + [g(x)]^2 = 1 \Rightarrow |f(x)| \le 1$ and $|g(x)| \le 1$
$\Rightarrow [f(x)]^{1998} \le [f(x)]^2$ and $[g(x)]^{1998} \le [g(x)]^2 \Rightarrow [f(x)]^{1998} + [g(x)]^{1998} \le [f(x)]^2 + [g(x)]^2 = 1$.

CREATIVE MINDS

ImaGiNe...

Remembering Miami

by Adrian Mall

I remember peach buildings pasted
to an inky Florida night
and stars in the sky like light
through moth holes in a lamp shade

and I can still see
blackened gum on sparkling asphalt
red faces passing a neon sign in a bar window
and girls with platinum hair flashing
against iodine tans

I can taste brown sugar crisp
on carne frita at Rodrigo's
and the salty, humid coating on my tongue

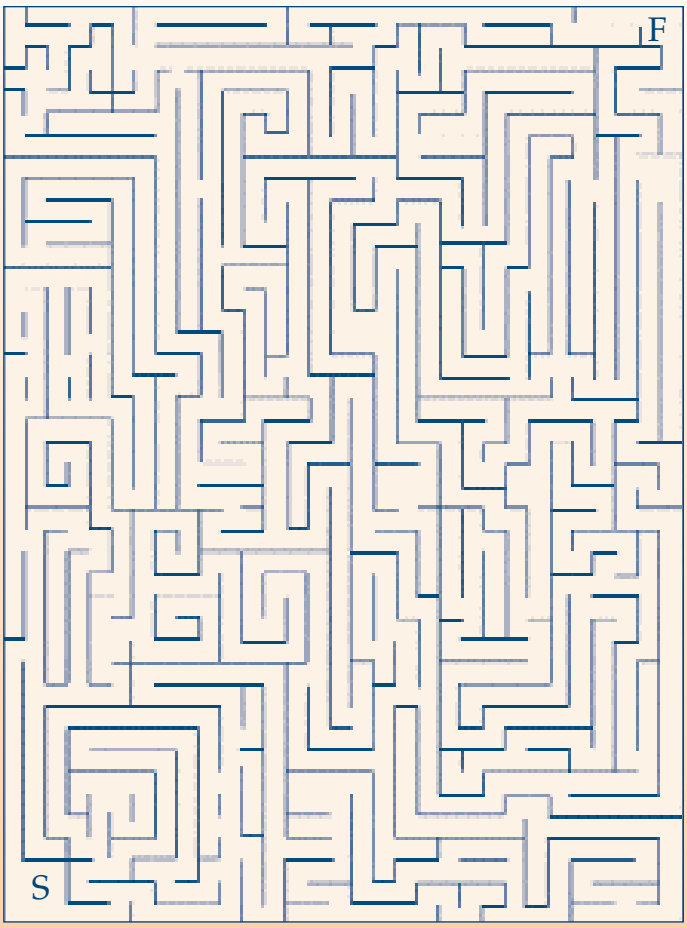
I feel the strong kiss of the sea's spray
the wind leaning on my cheek
a breeze carrying merengue

I still hear the crowd's busy speak
and the applause
of one hundred waves
crashing on the shore

Adrian Mall is a junior at Westmont Hilltop High School in Johnstown, PA. He is active in journalism and the Creative Writing Club and is also interested in photography.

A Maze

by Edward Shen



Edward Shen is a freshman at El Toro High School in Lake Forest, CA, where he is active in Key Club and FBLA. In addition to creating mazes, he's also interested in math and computers.

YOUR WRITING COULD BE ON THIS PAGE!

We welcome submissions of poetry, short stories, essays, book reviews, and puzzles.

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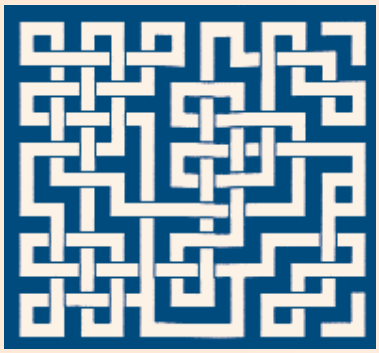
MARK YOUR CALENDAR...

with these registration deadlines for selected academic competitions. Inquire about competition format, dates, and fees.

DEADLINE	COMPETITION
Fall 1997	**JETS-TEAMS Competition, and National Engineering Design Challenge**—Schools register teams for both competitions, grades 9–12; *call for state deadlines:* Junior Engineering Technical Society, 1420 King Street, Suite 405, Alexandria, VA 22314-2794; (703) 548-5387, fax (703) 548-0769; jets@nas.edu; www.asee.org/jets
December 1*	**United States Academic Triathlon**—Schools/organizations register teams, grades 5–12. Enrichment kits available, grades 3–4. *December 1 deadline for existing teams in AZ, KS, MN, NY; new teams in other states may register through May 1: Peggy Sheldon, University of St. Thomas, DUN 234, 52 South 10th Street, Minneapolis, MN 55403; (612) 962-4534, fax (612) 962-4810; plsheldon@stthomas.edu
December 15 or January 15	**American High School Mathematics Exam (AHSME)**—Schools register, grades 9-12; lower fee for earlier date: Dr. Walter E. Mientka, American Mathematics Competitions, Department of Mathematics and Statistics, University of Nebraska, P.O. Box 81606, Lincoln, NE 68588-0658; (800) 527-3690, fax (402) 472-6087; www.unl.edu/amc/
January 1	**ACSL Computer Science Contest**—Schools register teams (no individual students); junior, intermediate, senior divisions: American Computer Science League, P.O. Box 40118, Providence, RI 02940; (401) 822-4312; info@acsl.org; www.acsi.org
January 6	**USA Computing Olympiad**—School Coordinators register grades 9–12; Qualifying Round held late January: Dr. Donald T. Piele, University of Wisconsin-Parkside, Kenosha, WI 53141; (414) 595-2231; usaco.uwp.edu
January 7 or March 11	**Knowledge Master Open-Elementary**—Schools enter one team, grades 5 & 6: Academic Hallmarks, Box 998, Durango, CO 81302; (800) 321-9218; fax (970) 247-0997. *(Grades 7–12 register by April 8.)*
January 10	**National Latin Exam**—Latin teachers register students in Latin I–IV: National Latin Exam, P.O. Box 95, Mount Vernon, VA 22121; format questions, (703) 360-4354; delivery awards questions, (703) 455-6779.
mid-January	**U.S. National Chemistry Olympiad**—Teachers nominate students who have taken high school chemistry; *call for local test dates:* American Chemical Society, 1155 16th Street, NW, Washington, DC 20036; (202) 872-6169; www.acs.org
mid-January	**National Mythology Exam**—Schools register students in grades 7–9. Participants are tested on Greek, Roman, Native American, and African mythology: American Classical League, Miami University, Oxford, OH 45056; (513) 529-7741, fax (513) 529-7742; www.umich.edu/~acleague/
January 14	**Duracell/NSTA Scholarship Competition**—Students enter individual original projects, grades 9–12: National Science Teachers Association, 1840 Wilson Boulevard, Arlington, VA 22201-3000; (888) 255-4242.
January 23	**NCTE Achievement Awards in Writing**—Teachers nominate students in grade 11: National Council of Teachers of English, Achievement Awards in Writing, 1111 W. Kenyon Road, Urbana, IL 61801-1096; (217) 328-3870.
January 28	**National Peace Essay Contest**—Students enter with adult contest coordinator, grades 9–12: United States Institute of Peace, 1550 M Street, NW, Suite 700, Washington, DC 20005-1708; (202) 429-3846; heather_kerr@usip.org
February 3	**Toshiba/NSTA ExploraVision Awards Program**—Teachers and community advisors register student teams, grades K–3, 4–6, 7–9, 10–12: National Science Teachers Association, 1840 Wilson Boulevard, Arlington, VA 22201-3000; (800) EXPLOR-9; www.nsta.org/programs/explora.htm
February 5	**Quill and Scroll Society International Writing and Photography Contest**—Individuals enter, grades 9–12: School of journalism, University of Iowa, Iowa City, IA 52242; (319) 335-5795, fax (319) 335-5210.



Knossos Games

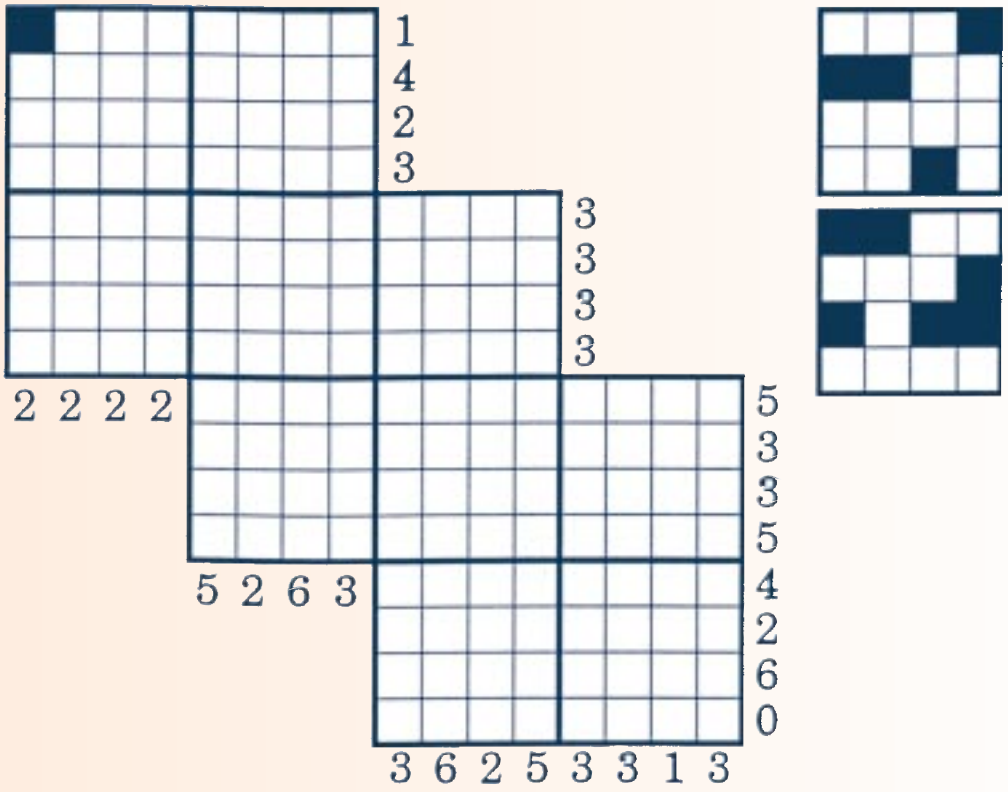
by Tim Boester

Fascinated by mazes and puzzles, Tim Boester is also intrigued by roller coaster design. Tim is a senior at the University of Chicago, where he is studying math.

Directions:

Use the two 4x4 stamps at right to fill in the squares of the larger grid. Each stamp may be rotated 90, 180, and 270 degrees. When the grid is correctly filled in, the total number of black squares in a row or column will equal the number found beside or below that row or column.

The square that is already filled in is a hint to get you started; it must be black in the completed puzzle.



Solution to Knossos Games in our September/October issue: