



# The California Tech

VOLUME CV, NUMBER 24

PASADENA, CALIFORNIA

APRIL 26, 2004

## Prefrosh Weekend: They Were Here



Courtesy of C. Saldana

A prefrosh puts up a ramp during Ruddock Greens, one of the many events put on by the houses for the prefrosh this past weekend during Caltech's annual open house for prospective students.

### Prefrosh Nerdiness Questioned

By ROYAL REINECKE

This year's Prefrosh Weekend brought beautiful weather as well as a large infiltration of impressionable young admitted students to Caltech for the days of April 22 through 24. Once again, familiar phrases like the infamous "They're all fine houses" could be heard resonating across the campus.

The large influx of prefrosh became apparent by Thursday night when all of a sudden techers could no longer recognize every face they encountered. However, dangling nametags and packets of information quickly gave away the identity of the prefrosh.

Many Caltech students helped contribute to the success of the weekend by helping out at the airport and on campus. Sophomore Dima Kamalov, a planetary science major acted as an "Airport Runner," greeting prospective students as they got off their planes. Knowing that he would be providing a first impression of a Caltech student, Dima prepared by not sleeping for forty-eight hours in advance. "I thought that would be really exemplary of Caltech life," he explains.

Meeting prefrosh at the airport also allowed Dima to make an initial analysis of the admitted students. He noted that they "leave a bit to be desired in the nerdiness department," but at the same time this year's prefrosh represent quite a diverse mix of talents and experiences.

Of the wide-eyed youngsters arriving at the airport, Dima also

described them as "completely untalkative." He relates how, "For once I had to start conversations-usually I am pretty shy." When later asked about this at Saturday's Steele House pizza luncheon, prefrosh Daniel Re-menak of El Dorado, California responded only with, "No comment."

The initial tacitness of the prefrosh could probably be explained by being in a totally new place. "Bus Runners," however, helped the prefrosh find their hosts' rooms once they arrived on campus. Soon enough, large flocks of prefrosh began to dominate the landscape of Caltech.

Upon arrival, each prefrosh received a humorous t-shirt portraying Caltech as "The World's Best Playground for Math, Science and Engineering." In addition, the prefrosh were given pages of information detailing all the events going on around campus from a casino night in Fleming to a desert social and screening of Jaws by Page. Lloyd, Fleming and Blacker put on athletic events from Capture the Flag to Basketball to Ultimate Frisbee. Ruddock created a miniature golf course while Ricketts staged a rock concert. On Saturday, Avery held a barbecue for the whole campus community with stellar performances from the a capella groups Out of Context and Fluid Dynamics.

Flyers papered the walls and walkways proclaiming all sorts of other things to see and do. Some represented groups like

## Patel's Original Play Helps Make One Act Theater Enjoyable Night

By JENNY IOFINOVA

The Caltech One-Act Theater presented their repertoire of five one-act plays on Friday night in the amphitheater behind Sherman-Fairchild library. There will be a repeat performance at 7:30 on Monday, April 26.

The One-Act theater, an innovation in the cultural life at Caltech, is the brainchild of Kayte Fischer '05, Ryan Olf '05 and Kim Pendorf '06. According to Fischer, the goal of the project was to bring a larger proportion of the Caltech

community into contact with theater and "have a student-produced theater project."

This year's production consists of five one-act plays, featuring a grand total of eighteen members of the Caltech Community as actors, four directors and a set/sound/lighting crew of five. Each play was chosen by the director and cast after an open casting call. According to producer Kayte Fischer '05, everyone who auditioned was given a part. Each play was rehearsed independently of the others for the last three to

eight weeks, with several run-throughs of the entire show in the end.

The result is a highly entertaining mix of humor, ranging from utter silliness to a sort of bittersweet reflections on life, love and respect. All pieces have a strong undercurrent of

Continued on Page 8, Column 4

## Arms Research Leads To Ethical Dilemmas

By WILLIAM FONG

On Wednesday, Daniel Kevles gave a lecture at the Beckman Institute Auditorium titled "Science, Arms and the State: J.R. Oppenheimer and the 20th century." Sponsored by the William and Myrtle Harris Distinguished Lecture Series in Science and Civilization, Kevles discussed the moral dilemma facing scientists when working for the state.

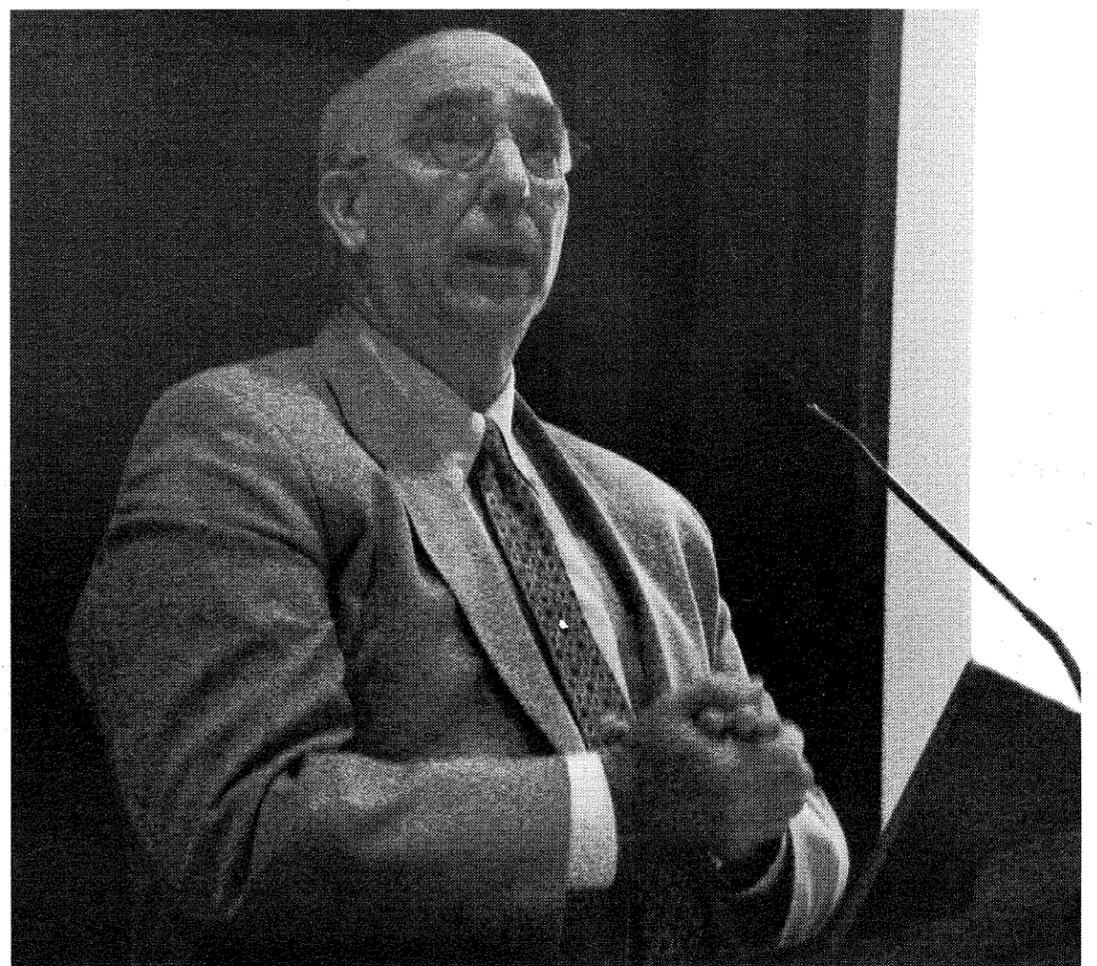
After receiving a doctorate in American history from Princeton University in 1964, Daniel Kevles began a 40-year association with Caltech. While he is a Professor Emeritus in the Humanities and Social Sciences department at Caltech, Kevles is currently a member of the faculty at Yale University.

Beginning his talk by mentioning that this year would have marked the 100th birthday of J. Robert Oppenheimer, the father

of the nuclear age, Kevles posed the dilemma that scientists of the 20th century including Oppenheimer have faced. That is, although a scientist has an obligation to the state with regards to national security, a scientist in the process commits a personal sin by developing weapons whose sole purpose is to injure soldiers or civilians.

In his lecture, Kevles provided two in-depth examples that display this dilemma: the use of chemical warfare in World War I and the development of the nuclear bomb in World War II.

The subject of chemical warfare was first mentioned at the Hague Convention of 1899. There was a declaration to ban the use of projectile devices to release chemicals. The ban was passed to protect civilians and women and children, not as a precaution



D. Korta/The California Tech

Dr. Daniel Kevles, a former Caltech humanities professor, speaks about the moral decisions of scientists who work on the development of weapons.

Continued on Page 8, Column 1

Continued on Page 2, Column 1



Charles Elachi is the Director and Vice President of JPL as well as a professor in both electrical engineering and planetary science at Caltech. He will give a Watson Lecture this Wednesday.

Courtesy of [jpl.nasa.gov](http://jpl.nasa.gov)

## Elachi to Lecture On Recent JPL Missions

By MARK WHEELER

PASADENA, Calif. -- It's been a busy year for the Jet Propulsion Laboratory, with a number of recent missions serving as the first salvos of a bold space science and exploration program in the coming years. Two goals, notes Charles Elachi, JPL's director and vice president and professor of electrical engineering and planetary science at the California Institute of Technology (JPL is a NASA facility managed by Caltech), are to explore the universe and search for life in it. On Wednesday, April 28, Elachi will discuss the numerous missions that will spread throughout the solar system over the next decade in his talk, "Challenges and Excitement of Space Exploration," the last of the 2003-2004 Earnest C. Watson Lecture Series at Caltech.

In the 12-month period (summer of 2003 to summer of 2004), he notes, the most advanced space infrared telescope (the Spitzer Space Telescope) started its mission of exploring the universe in the infrared, while the Galaxy Evolution Explorer (GALEX) is mapping the sky in the ultraviolet. Two rovers (Spirit and Opportunity) continue their in situ exploration of Mars in coordina-

tion with two orbiters (Odyssey and Mars Global Surveyor). At the same time, Stardust and Genesis are collecting samples from a comet's coma and the solar wind for return back to Earth (Genesis, with its solar wind sample, lands September 8; Stardust returns its comet sample in January 2006), while Cassini will start its exploration of the Saturnian system as it goes into orbit around Saturn on June 30.

Elachi was born in 1947. He received a B.S. from the University of Grenoble, France and a Diplôme Ingenieur from Grenoble's Polytechnic Institute in 1968. He then received an M.S. and Ph.D. from Caltech in 1969 and 1971, respectively. He has since earned an MBA and an additional M.S.

Elachi's lecture will take place at 8 p.m. in Beckman Auditorium, near Michigan Avenue south of Del Mar Boulevard, on Caltech's campus in Pasadena. Seating is available on a free, no-ticket-required, first-come, first-served basis. Caltech has offered the Watson Lecture Series since 1922, when it was conceived by the late Caltech physicist Earnest Watson as a way to explain science to the local community.

## Prefrosh Visit Classes, Enjoy Special Activities

Continued from Page 1, Column 5

the Caltech Christian Fellowship. Other flyers drew upon the prankster spirit of Caltech. For example, advertisements for the Caltech Chthulu Fellowship proclaimed, "When He awakens, His faithful servants will be eaten last. Wouldn't you like to be eaten last?"

On Friday, many prefrosh checked out the classes, packing the lecture halls with a turnout unseen since the first week of the term. Freshman Math and Physics proved especially popular classes to visit. A couple ambitious prefrosh were even spotted taking notes on the material being covered.

The club fair also proved popular during lunchtime on Friday with the Meat Club offering free samples of goat and lamb roasted right before the prefrosh's eyes. On the other side of the spectrum, vegetarian club managed a strong showing as well.

Just about every prefrosh mentioned some experience he or she had never engaged in before coming here—from ballroom dancing in Avery to tie-dying in Dabney House. Perhaps on her way to getting some preparation for the Caltech sleep schedule, Krystin Fong of Sacramento, California eagerly admitted with a grin how she "tried coffee for the first time" during Prefrosh Weekend.

Another prefrosh, Molly Davis of Magalia, California explained, "Everything about Caltech says it is crazy and psycho, so I thought, 'maybe I'll fit in here.' Molly went on to say that her Prefrosh Weekend Experience showed her that, "It [Caltech] is not a school of 900 complete and total nerds sitting in their rooms studying all the time." (Well... at least not on

Prefrosh Weekend!)

Meanwhile, techers developed their own views of the prospective frosh. At Saturday's lunch, Freshman Civil Engineering major Kristen Ward dubiously remarked, "I don't know, but I was sitting over there eating pizza and they [the prefrosh] were cracking delta-epsilon jokes."

When asked his opinion on the prospective members of the class of 2008, Junior Jared Updike definitively replied, "They're all fine prefroshes." Jared, a computer science major, took his prefrosh to a CS lecture and afterwards brought him to talk with the professor of the class.

### The California Tech

Caltech 40-58, Pasadena, CA 91125  
editorial desk: (626) 395-6153  
advertising desk: (626) 395-6154  
editorial e-mail: [tech@tech.caltech.edu](mailto:tech@tech.caltech.edu)

VOLUME CV, NUMBER 24

Tammy Yee Wing Ma Vi Tuong Tran  
Managing Editor Business Manager

Matthew H Walker Circulation  
News Director Natalia Deligne

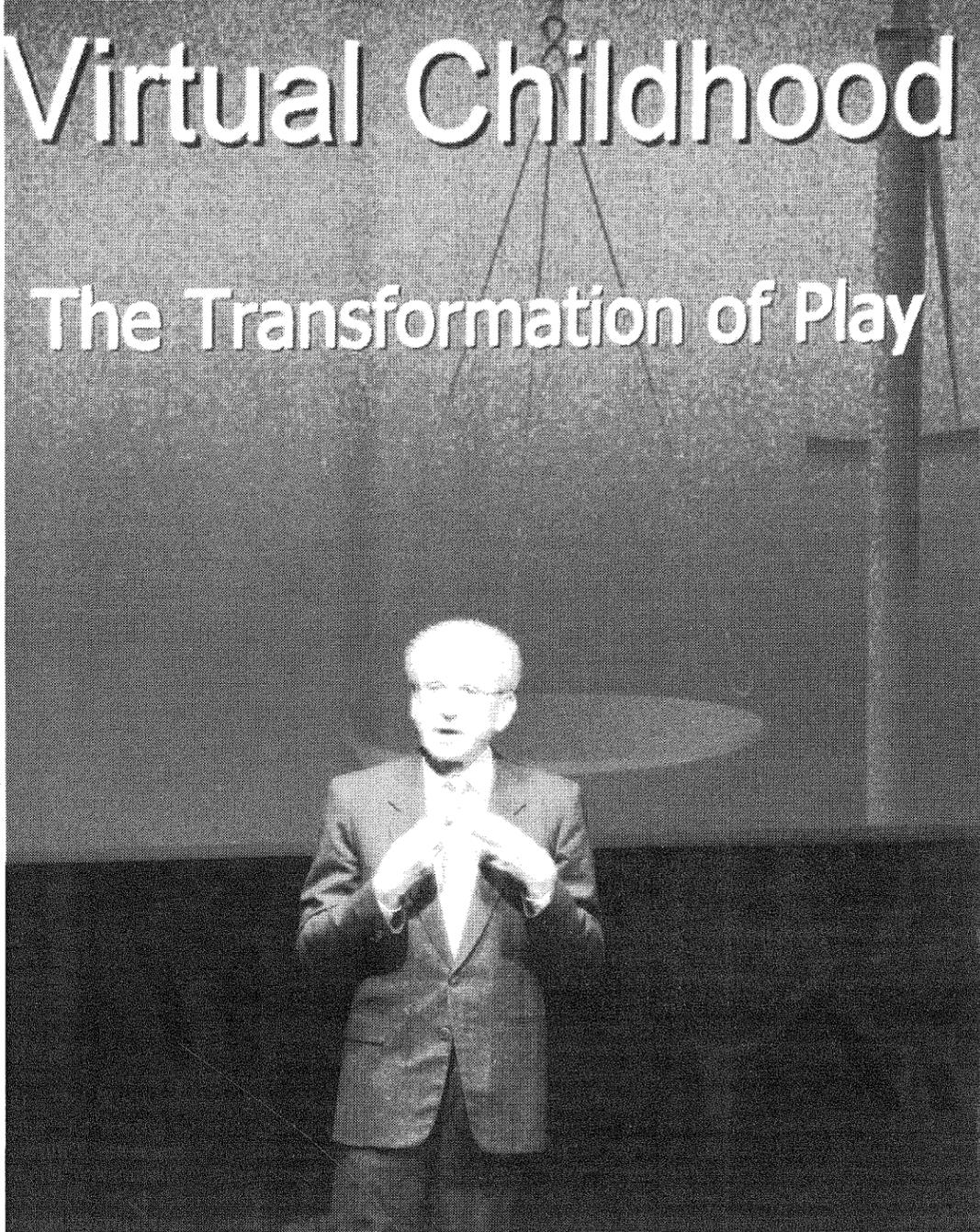
Tearsheets  
Tim Tirrell

The Tech is published weekly except during vacation and examination periods by the Associated Students of the California Institute of Technology, Inc. The opinions expressed herein are strictly those of the authors and advertisers.

Letters and submissions are welcome; e-mail submissions to [tech@tech.caltech.edu](mailto:tech@tech.caltech.edu) as plain-text attachments, including the author's name, by Friday of the week before publication. Sorry the Tech does not accept anonymous contributions. The editors reserve the right to edit and abridge all submissions for any reason. All written work remains property of its author.

The advertising deadline is five p.m. Friday; all advertising should be submitted electronically or as camera-ready art, but the Tech can also do simple typesetting and arrangement. All advertising inquiries should be directed to the business manager at [business@tech.caltech.edu](mailto:business@tech.caltech.edu). For subscription information, please send mail to "Subscriptions."

## Week of the Child Honored With Speech by Tufts Childhood Expert



Dr. David Elkind speaks about the increasing stressfulness of childhood. Elkind is a professor at Tufts University in Child Development. He has written several books on childhood.

D. Korta/The California Tech

# Week in Sports: Track & Field Sets School Records, Men's Baseball Takes a Tough Loss, Teams Wrap Up with SCIACS

By MIKE RUPP

April 19, 2004

**Athlete of the Week**

**Tamara Becher**  
 Women's Track and Field  
 The Senior from Croton-on-Hudson, New York set the school record in the 3000 meter Steeplechase this past weekend at the SCIAC Preliminaries with a time of 12:04.19. Becher's performance catapulted her to 4th best time in conference this year, heading into this weekend's conference championships. In addition to the new record, Becher also qualified for the Women's 800 Meter run with a time of 2:24.59. Becher's performance helped earn the Caltech Women a tie for 5th place at the Preliminaries.

**Week in Review**

Men's Tennis (7-11)  
 Head Coach: Mandy Gamble

| Men's Tennis<br>SCIAC Championships |   |
|-------------------------------------|---|
| Caltech.....                        | 1 |
| POMONA-PITZER.....                  | 4 |
| CALTECH.....                        | 7 |
| Whittier.....                       | 0 |
| Caltech.....                        | 0 |
| OCCIDENTAL.....                     | 6 |

The Men's Tennis team finished its season with a 6th place finish at the SCIAC Championships this past weekend. Sophomore John Howard at #4 singles was the top performer for Caltech at the tournament, winning Caltech's sole point against Pomona-Pitzer and winning at singles and doubles

against Whittier. Overall, the team finishes with a 7-11 record, with a 4-6 conference record. The team expects to return its entire lineup next season, and also hopes to bring in some talented freshmen this fall. Congratulations to the whole team.

Women's Tennis (4-13)  
 Head Coach: Mandy Gamble

| Women's Tennis<br>SCIAC Championships |   |
|---------------------------------------|---|
| Caltech.....                          | 3 |
| LA-VERNE.....                         | 6 |
| Caltech.....                          | 0 |
| CAL LUTHERAN.....                     | 5 |

The Women's Tennis team finished its season this past weekend at the SCIAC Championships, losing to La Verne and Cal Lutheran before their third match was rained out. Sophomore Jenny Hsaio won both her singles and doubles matches against La Verne in the loss. The team's performance this season represented considerable improvement from last year's 0-21 record. Congratulations to the whole team!

Track & Field  
 Head Coach: Julie Levesque

The Caltech Track and Field team continued to break school-records and watch its athletes improve their places in the SCIAC standings last weekend at the SCIAC Track and Field Preliminaries. In addition to Senior Tamara Becher's Athlete of the Week performance, several other Beavers had standout performances. Sophomore Helen Tai broke the school record in the Women's 100 Meter High Hurdles with a time of 16.31 seconds. 14 Personal re-

ords fell, including Sophomore Jeremy Leibs in the 100 Meter, Sophomore Stuart Ward in 400 Meter, Sophomore Gustavo Olm in the 3000 meter Steeplechase and Senior Ali Hassani in both the 400 and 200 meters. Those student-athletes who qualified for the SCIAC Championships will compete this weekend.

Men's Baseball  
 Head Coach: John D'Auria

| Men's Baseball |    |
|----------------|----|
| Caltech.....   | 0  |
| CMS.....       | 17 |

The Men's Baseball team took a tough loss against Claremont Mudd-Scripps this past Friday, losing 0-17. For the season, Sophomore Tim Boyd has been the team's best performer at the plate, with a .409 batting average and leading the team in total hits, slugging percentage and on-base percentage. Junior Isaac Gremmer has been the team's best pitcher with two wins and 32 strikeouts in 43 and 1/3 innings while also producing at the plate with a team-leading eight RBI in 10 games. The team plays its next game this Friday at La Verne.

Men's Golf  
 Head Coach: John Suarez

| Men's Golf   |     |
|--------------|-----|
| Caltech..... | 345 |
| CHAPMAN..... | 360 |

The Men's Golf team took a close loss to Chapman University this past week, 345-360. Senior David Hedley lead the team with a 78, three strokes behind the top finisher for Chapman, and contin-

ues to close in on a first team All-SCIAC selection. The team competes this week at 18-hole conference tournaments Monday at Red Hill Country Club and Thursday at Brookside.

Women's Water Polo (5-16)  
 Head Coach: Calla Allison

The Women's Water Polo team lost three matches this past week, two against conference rivals Pomona-Pitzer and Occidental, both of whom are in the CWPA Top 10 D3 poll. Senior Jacki Wilbur was the best performer for the week, with totals of three goals, nine steals and six ejections drawn. Sophomore Bekah Eason had her second hat trick (three goal performance) and is currently third on the team in scoring.

| Women's Waterpolo  |    |
|--------------------|----|
| Caltech.....       | 1  |
| POMONA-PITZER..... | 12 |
| Caltech.....       | 3  |
| ST MARY'S.....     | 5  |
| Caltech.....       | 6  |
| OCCIDENTAL.....    | 13 |



Tamara Becher '04 set the school record in the 3000 meter Steeplechase in last week's Track and Field SCIAC Preliminaries, earning her the Athlete of the Week distinction.

The team will wrap up its season this week with an away match at Cal Lutheran on Wednesday and the SCIAC Championships this weekend.

This Week in Caltech Athletics  
 Apr. 19: Men's Golf, SCIAC 18-Hole Tournament, 12:30 PM  
 Apr. 21: Women's Water Polo at Cal Lutheran, 5:00 PM  
 Apr. 22: Men's Golf, SCIAC 18-Hole Tournament, 12:30 PM  
 Apr. 23: Men's Baseball at La Verne, 3:00 PM  
 Apr. 24-25: Women's Water Polo at SCIAC Championships, All Day  
 Bold indicates HOME game

**Certified mover**

**Certified shaker**

**Certified no more mac & cheese**

**Certified acceleration**

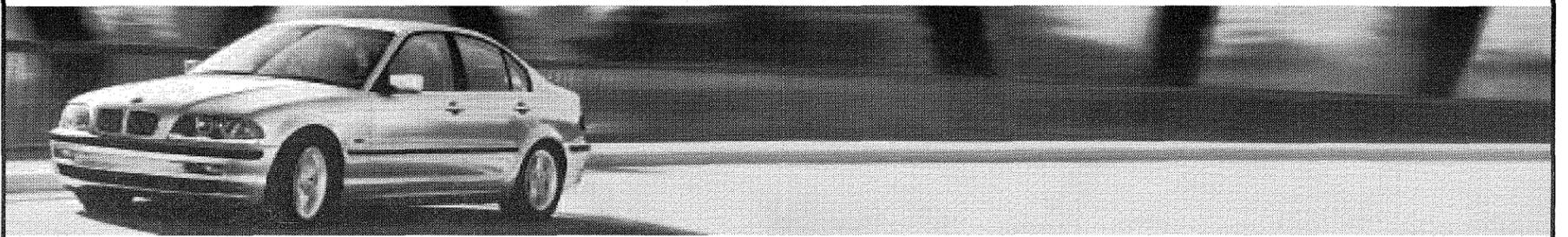
**Certified rush**

**Certified freedom**

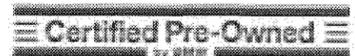
**Certified bring it on**

**Certified Pre-Owned BMW**

BMW Certified Pre-Owned  
 bmwusa.com  
 1-800-334-4BMW



**Certified only at an authorized BMW center.**  
 Get warranty protection\* up to 6 years or 100,000 miles. Get flexible leasing and financing options. Get pure BMW.



search up-to-date, extensive inventory at [bmwusa.com](http://bmwusa.com)

\*Protection Plan provides coverage for up to 2 years or 50,000 miles (whichever comes first) from the date of the expiration of the 4 year/50,000 mile BMW New Vehicle Limited Warranty. See participating BMW passenger car center for details. For more information, call 1-800-334-4BMW, or visit [bmwusa.com](http://bmwusa.com) ©2004 BMW of North America, LLC. The BMW name and logo are registered trademarks.

# Look Closer at an American Masterpiece

By HARRISON STEIN

"It's hard to be angry when there's so much beauty in the world."  
--Lester Burnham

A genuinely realistic film that accurately depicts everyday life comes along once or twice a decade. People go to the movies for all different reasons but very few expect to learn valuable lessons, and as a result, films like the classic *American Beauty* are simply unforgettable. Sam Mendes's groundbreaking 1999 debut contains some of the best acting you will ever see, including an unprecedented performance by the unmatched Kevin Spacey, yet the movie's greatest strength is its ability to create a vivid depiction of the pitfalls of seemingly ordinary lives.

Spacey plays Lester Burnham, a burned-out, middle-aged malcontent with a dead-end job who suffers a mid-life crisis when he recognizes the lack of purpose in his piddling life. His wife Carolyn (Annette Bening in an Oscar worthy role) is a tool of upper-class society willing to sacrifice her own morals in order to climb the social ladder, while daughter Jane (Thora Birch) is the epitome of teenage angst. From the outside, it appears that this wealthy suburban family is living the American dream, but on a closer look, their life is a complete charade.

Lester finds an escape from his monotonous existence through a disturbingly lustful yearning for his daughter's high school friend, Angela, while Carolyn demonstrates her newfound independence by starting a wild affair with a conceited real estate mogul. In the meantime, Jane falls



courtesy of www.haro-online.com

Even if you've seen it before, it's worth watching *American Beauty* again for all its beautiful acting and life lessons.

in love with her outlandish next door neighbor, a self-made drug dealer with a controlling, homophobic father. All three stories come together on a rainy day in one of the most satisfying conclusions in cinematic history.

Kevin Spacey won a much deserved Best Actor Oscar for his touching portrayal of a broken cynic, because he steals virtually every scene in one of the most memorable performances in modern cinematic history. Spacey makes Lester as vulgar, sarcastic and unlikable as possible, yet he is still a hero because the audience can identify with his struggles. Bening and the supporting cast more than hold their own as they each give searing performances to complement Spacey's once-in-a-lifetime role. The young actors, including Thora Birch, Wes Bentley and Mena Suvari are revelations because they manage

to stand out despite the presence of so many talented, experienced actors.

Nonetheless, what separates *American Beauty* from any other well-acted drama is Alan Ball's script, one of the best screenplays of the decade. The story is so creatively written that the audience is forced to identify with at least half-a-dozen different characters. In addition, the script is amazingly witty, as *American Beauty* is slowly becoming one of the most quoted movies of the 90s. Most importantly, however, *American Beauty* has more valuable life lessons than any movie in recent memory. Through Lester's bizarre exploits, we begin to appreciate the gravity of beauty in this world and because of Jane's relationship with Angela, we learn that there is nothing worse than being ordinary. Also, every person in *American Beauty* is far different than he/she appears because sometimes, we have to look closer to truly understand someone.

*American Beauty* is one of the most important movies ever made and the best film of the 1990's because it manages to speak to all different generations. Teenagers can relate to Jane's intense problems, while every man has felt like Lester at one time or another. In his very first picture, Sam Mendes has managed to make a movie for everyone and the end result is absolutely beautiful.

\*\*\*\* out of \*\*\*\*



courtesy of www.haro-online.com



The cast of MTV's *Real World - San Diego* will be in the **Avery Dining Hall on Monday, April 26 at 8 pm**. They will talk about some of the real life challenges they have faced and are facing and will run a question/answer/discussion session with the Caltech students who attend. It will be a very neat opportunity to hold an open discussion (with a very visible group) about many non-academic issues facing college students today.

**Summer Work Study:** Information and applications for 2004 Summer Work Study are available in the Financial Aid Office. If you are interested in Summer Work Study, please submit the required application as soon as possible, but no later than June 1, 2004. Your entire financial aid application must be complete by June 1, 2004 in order to be considered for Summer Work Study. If awarded, the work study funding will begin July 1, 2004.

**Attention all undergraduate students on Financial Aid:** The last date to request any adjustments of loan to work study, or work study to loan, for your 2003-04 financial aid award, is Friday, May 7, 2004. Requests for 2003-04 changes made after May 7 will not be considered. Please contact the Financial Aid Office at ext. 6280 if you have any questions.

**Reuse A Shoe.** Get your old sports shoes back in the game with the City of Pasadena. Recycle your worn-out athletic shoes with Nike's Reuse-A-Shoe program. The shoes are ground up to make new sports surfaces like soccer and football fields and basketball courts. When dropping off shoes please follow these simple guidelines:

- \* Athletic shoes only (any brand without metal)
- \* No Metal (spikes, cleats, eyelets)
- \* No dress shoes, thongs, sandals, boots or shoes with lights.
- \* No wet or muddy shoes
- \* Do not tie shoes together.

Look for the Special Blue collection bins with the REUSE A SHOE sign at these locations until June 15:

- Villa Park Community Center  
363 East Villa Street
- Jackie Robinson Park  
1981 N. Fair Oaks Avenue
- Victory Park Community Center, 2575 Paloma Street

For more information, or to set up a collection container at your location please call 626-744-4721 or email cmeredith@cityofpasadena.net

**Caltech Blitz Chess Championship.** The Caltech Chess Club will host its second annual blitz chess championship on Friday May 7th, from 8 till 10:30 pm, in the Page House Dining Hall. Participation is free to everyone in the Caltech community, and players of all skill levels are welcome. There will be a \$425 guaranteed prize fund: \$150, \$100, \$75, \$50, and special prizes for novices (\$30, \$20). To participate, please email Patrick Hummel (hummel@its), or arrive 10-15 minutes early for the event.

The Mathematics Department is pleased to announce two categories of prizes to be offered again this year to Caltech undergraduate students.

1. The **E.T. Bell Undergraduate Mathematics Research Prize** --- A cash prize of \$500 awarded for the best original mathematics paper written by a Caltech Junior or Senior. Contestants must be nominated by a faculty member familiar with the work. If the entry is sufficiently worthy, the faculty member will nominate the contestant and act as sponsor. Each student is entitled to only one entry. All contestants nominated must

submit their papers in final form to their faculty sponsors by Monday, May 10. A faculty committee will judge the papers and announce its decision before the end of the third term. The committee may award duplicate prizes in case of more than one outstanding entry.

2. The **Morgan Ward Competition** --- Open to any Caltech freshman or sophomore. Entries may be individual or joint. Each student is entitled to three entries; two may be individual. An entry consists of a mathematical problem with a solution or significant contribution toward a solution. The problem may have any source which should be stated in the entry. The entries are judged on the basis of the nature of the problem, originality, and elegance of the solution. Indicate any outside references used. Entries from each contestant or group must be delivered to 253 Sloan by May 10. The names of the contestant, or contestants, must be written on the envelope only, not on the entry. The Judging Committee will consist of 3 undergraduates. The judges will select a group of finalists and submit their entries to the mathematics faculty who will make the awards. Prizes of \$75 will be awarded for the best entries. Prizes for individual entries will be limited to one per contestant; no group may receive more than one prize.

The Hawaiian Club is offering **hula (traditional Hawaiian dance) lessons** this term! Class will be held in Winnett Lounge on Saturdays from 2-4pm until May 29 (with the exception of 4/24 and 5/1: these classes will be held on Sunday, 4/25 and 5/2). The cost is \$5/class for Caltech community members; \$12/class for all others.

For more information, see our club website at <http://www.ugcs/~lilinoe> or email us at [maruchan@its](mailto:maruchan@its).

The **Mary A. Earl McKinney Prize** is awarded each year for excellence in writing. Only full-time students officially registered at Caltech as undergraduates are eligible to enter the competition. This year, prizes will be given in three categories: poetry, prose fiction, and non-fiction essays. All submissions must be typed and double-spaced. Include your address and phone number. In the poetry category, entrants may submit up to three poems. Submissions of prose fiction should not exceed 12,000 words. Essays may be ones prepared for a humanities class or any good piece of original writing on a topic relevant to the humanities. The prize in each category will be \$500. Each student is entitled to only one entry in each category. Contestants should submit hard copies of their work to Professor Jenijoy La Belle, Division of the Humanities and Social Sciences, 228-77, by no later than April 30, 2004. No entries will be returned. Each category will be judged by a committee from the Literature Faculty. Essays will be judged on the quality of thought and the effectiveness of the writing. Winners will be announced in May, and the names of the winners will appear in the commencement program. The Committee may divide the award in each category in case of more than one outstanding submission. Previous winners in any one category are not eligible for the competition in that category. If you have any questions, contact Prof. La Belle, extension 3605, or Barbara Estrada, extension 3609.

The Literature Faculty is pleased to announce the **Annual Hallett Smith Competition** honoring the finest essay devoted to Shakespeare. Only full-time, officially registered undergraduates are eligible to enter the competition.

All submissions must be typed and double-spaced and should not exceed 4,000 words. The essay may be one prepared for a literature class or may be specifically written for this competition. No student can submit more than

*Continued on Page 6, Column 3*

## GETTING BLOOD

BY HAMILTON FALK AND JACK LOE

An Uplifting Comic for the Average Teacher

edited by Cat Chou

## Letter to the Editor: Is Segregation "Natural?"

Dear Editor,

I write to correct some misunderstandings about your report of the student housing segregation debate on April 14 and to make some observations about that debate, the issue, and the climate on campus. My only claims for a right to speak are that I had framed an earlier version of the topic discussed, that I spoke publicly on the occasion, and that your reporter misrepresented my position and my statements.

At the end of the often-illuminating discussion between the two pairs of student debaters, Ms. Bilal, the chair of the Public Speaking Club, asked if I wished to say anything. I did. I began by remarking that the topic as I'd suggested it contained no mention of SELF-segregation. (Your report mentioned my framing of the topic, but not the addition of "self" without my knowledge or approval.)

Segregation is an objective fact. White students comprise 75% of the residents of Ricketts House, but only 36% of those in Avery. There are ten people of apparent Asian descent in Dabney, and five times that many in Avery. Whether this very marked degree of segregation in Institute-owned and -operated housing is entirely voluntary or not, however, is a conclusion about individual motives on which we currently have no systematic evidence.

We would not need such evidence if it were true, as the debate team against the proposition, those students who appeared during the debate with a sign stating that "Affirmative Action is Racism," and some of those students who stayed after the debate ended to discuss the subject for another hour seemed to assume: that is, if segregation were "natural."

As a white who grew up in the segregated South and who has spent most of his academic life studying and seeking to combat racial discrimination, I find such an assumption as factually incorrect as it is morally repugnant.

For one thing, the history of slavery, segregation, and discrimination in the U.S. demonstrates the importance of law in imposing such regimes. Without comprehensive legal authority, slaves could have just escaped, defended themselves legally against potential captors, and recaptured the full fruits of their own labor. Segregation laws were necessary, as their proponents well understood, because left to their own devices, people would interact in ways contrary to theories of white supremacy. Without government-enforced segregation, some individuals would buy houses or rent apartments outside ghettos; some people would cohabit or marry across color lines; some employers would hire based on purely economic considerations. Nature abhors strict segregation.

For another thing, humans have many identities. Which is most "natural"? Should houses be segregated by race, skin tone, gender, class, religion, political party, sexual preference, linguistic capability, regional or urban/rural upbringing, country of origin of ancestors, major, musical taste, or morning/night-time proclivity, just to name a few? At different

times and places, or in an individual's life, at different life stages, any of these may be most important. All are what anthropologists call "social constructions." None can be set off as "natural," as opposed to "artificial."

But because of the particular discriminatory history of the United States, classifications by some of these categories are particularly "suspect," as the U.S. Supreme Court puts it--especially race and gender. When we observe an objective pattern of unbalanced racial and/or gender ratios, we have to ask whether some people are being excluded against their will, whether, in this instance, they are deliberately or innocently made to feel unwelcome in particular houses. Perhaps members of majority groups make remarks that they feel are entirely innocuous or even just humorous that individuals from other groups interpret as indicating that they are inferior or different--unwanted.

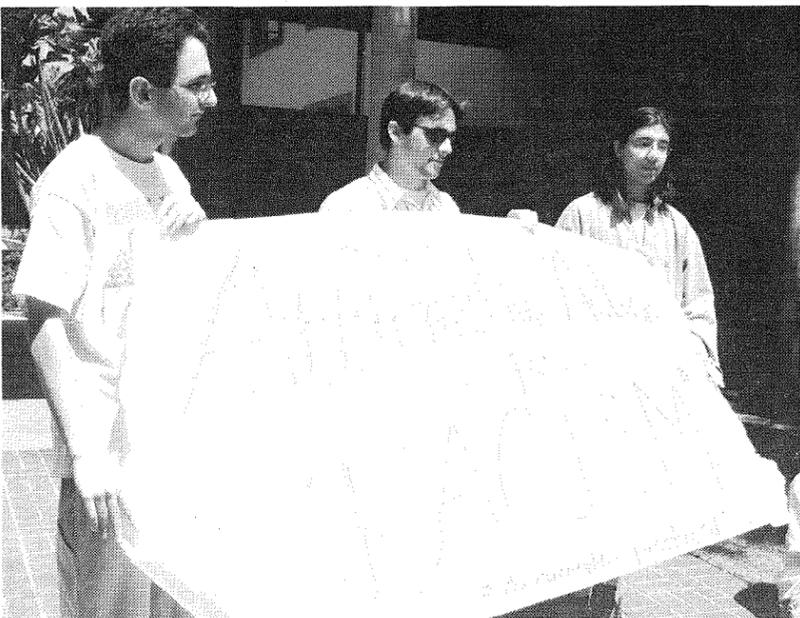
At this point, we simply don't know what accounts for the pattern of segregated undergraduate housing at Caltech, and we don't know whether it can be alleviated by simple consciousness that the imbalance exists, or whether more vigorous action will be necessary to reintegrate the campus.

Perhaps nothing made it clear that Caltech is faced with a problem, and not just a condition better than the appearance of the "Affirmative Action is Racism" banner during the debate. By equating any action against or even discussion of segregation with affirmative action, the students ignored the history of discrimination, the continuing effects of past discrimination, and the quite considerable continuation of private and state-enabled discrimination.

They also associated themselves with the position pioneered in the 1960s by Alabama Governor George C. Wallace, the man who stood symbolically in the school-house door at the University of Alabama to prevent any action to enforce the U.S. Constitution by allowing African-American students to enter. Many students, and not only those targeted by the sign, might feel uncomfortable living in the same house with undergraduates so ignorant of historical and current race relations and so insensitive to the feelings of others. They might then "voluntarily" segregate themselves.

Is this the sort of social climate that Caltech should foster?

J. Morgan Kousser  
Prof. of History and Social Science



Students hold up at "Affirmative Action is Racism" sign during the Student Housing Segregation debate on April 14.

## ASCIT Prepares Survey on Avery Issue, Takes Steps to Improve Communication With GSC

ASCIT Minutes  
April 21, 2004

Present: Ann Bendfeldt, Ryan Farmer, Jenny Fisher, Shaun Lee, Kelly Lin, Galen Loram, Kim Pependorf, Corinna Zygourakis  
Absent: Claire Walton (class)  
Guests: Jeff Cox, Lydia Ng, Mark Polinkovsky, Ryan Samson, Candace Seu

Introduction:

1. Call to Order, 12:06 PM

New/Open Positions:

2. Interviews for MHF and CRC committee representatives will be held on April 27 and 28 at 10 pm.

Other Business:

3. Kim Pependorf discusses preparation of survey on the Avery issue for the entire undergraduate student body. This survey will go up on the donut website this week. Its results are very important and will be presented to the faculty board on May 10, so please take the time to participate in it!!

4. Galen Loram asks whether he and the BoD as a whole should take a stance on the Avery issue. After some debate, no clear decision is reached.

5. BoD ratifies ASCIT Executive Committee members Kim Hiscox, Lea Hildebrandt, Libin Zhang, Julian Greene, Gunnar Ristroph, Andrea Kung, and Abe Fetterman. Vote: 7-0-0 (approved). Members were chosen from respondents to Galen's email announcement and from the members of last year's Excomm. BoD agrees with Ryan Farmer's suggestion to charge students a \$5 overhead fee for re-purchasing lost DVDs. Ryan will draft resolution to deal with charging students for late and lost DVDs.

6. Corinna Zygourakis reports back from Saturday meeting of CAFAC (Caltech Alumni Fund Advisory Council), on which she serves as the undergraduate student representative. Corinna mentions ways to facilitate interactions with Caltech alums, particularly by inviting alums to attend house dinners over the next few terms.

7. Corinna also discusses how to improve communication with the Graduate Student Council (GSC) and suggests a joint meeting between the two groups. Possible areas of interaction include expanding the DVD library, integrating graduate students in the Student Faculty Conference, and

encouraging undergraduate student TA's to utilize the graduate-student-run Caltech Project for Effective Teaching.

8. Corinna notes that the Alumni Association has improved its alumni online directory to include alumni careers, areas of interest, etc. This database, which promises to be very helpful in job search and networking, should be made available to undergraduate students in the near future.

9. Kim mentions new IHC decision that students in Blacker, Ricketts, and Dabney may pick cards in more than one house, but obviously cannot pick rooms in more than one house.

10. Kim notes that Avery has worked to improve its Constitution, which will be ratified at a later date. In addition, Kim mentions the Avery 2nd Internal Lottery, which was actually eliminated a day after the ASCIT meeting.

11. Reporting back from a recent CUE meeting, Jenny Fisher notes that Chem 3a will now be offered in separate morning and afternoon sections (as opposed to the one-day sections in which it is now offered).

12. Jenny announces the ARC Committee Representatives-at-Large Liz Felnagle and Meng-Meng Fu and ARC Secretary Wendy Xu.

13. Kelly Lin has sent out club letters to most clubs (elucidating reasons for the amount of funding they received). The rest of the letters should be sent out by the end of the week

Money Requests:

14. Ryan Samson, Joey Vega, and Jonathan Lee request to take Professor William Goddard out to lunch at the Ath. Vote: 5-0-0 (approved).

15. Candace Seu and Mike Wilson request to take Professor Kayoko Hirata out to lunch at the Ath. Vote: 6-0-1 (approved; Kelly abstaining).

16. Melinda Owens and Viviana Gradinaru ask to take Professor Joseph Bogen and his wife out to lunch at the Ath. Vote to approve lunch, pending approval of MOSH: 6-0-1 (approved, Kelly abstaining).

17. On behalf of the Caltech Orienteering Club, Mark Polinkovsky thanks BoD for club funding.

18. Lydia Ng thanks ASCIT for Blacker Interhouse party funding and provides receipts. Galen mentions that houses should advertise ASCIT funding on their party flyers if they advertise GSC funding.

Upcoming Events:

19. Mark your calendars! The

ASCIT formal will be held on Saturday, May 29, at the MOCA (L.A.'s Museum of Contemporary Art). Tickets will go on sale shortly.

Meeting adjourned 1:00 PM.

Respectfully submitted,  
Corinna Zygourakis  
ASCIT Secretary

UNIVERSITY  
TUTOR

Now Hiring:

Student needed to manage and market University Tutorbranch at Cal Tech. Excellent pay.

[apply.universitytutor.com](http://apply.universitytutor.com)

Postbaccalaureate Premedical Program

You want to go to medical school, you have your B.A., but the only science course you've taken has been *Physics for Poets.*

We have a program for you.

Columbia University's Postbaccalaureate Premedical Program is America's oldest and best.

Discover why our graduates have an 85% placement rate in American medical schools. Call:

(800) 890-4127

[gspremed@columbia.edu](mailto:gspremed@columbia.edu)  
[www.columbia.edu/cu/gsp/postbacc](http://www.columbia.edu/cu/gsp/postbacc)

COLUMBIA  
School of General Studies



Your Sperm can EARN

Become a sperm donor and earn extra income

- Make even more money by referring your friends to be donors
- Convenient Pasadena location
- Help people create families

It's a smart way to make extra money that takes very little time.

You need to be 21-35, healthy and able to make a 1yr. commitment

Pacific Reproductive Services

626.440.7450





Continued from Page 4, Column 5

one essay.

All contestants must submit two hard copies of their work to Professor Jenjoy La Belle, Division of the Humanities and Social Sciences, 228-77, no later than April 23, 2004.

This year's prize will be \$350, though the judging committee may divide the award in case of more than one outstanding submission. For more information, contact Prof. La Belle, extension 3605, or Barbara Estrada, extension 3609

**The Collegiate Inventors Competition 2004**

Call for Entries  
Download the application packet from: [www.invent.org/collegiate](http://www.invent.org/collegiate)

To recommend someone for the award E-mail [collegiate@invent.org](mailto:collegiate@invent.org) or call 330-849-6887

The Grand Prize Award is \$50,000. The Deadline for the 2004 competition is June 1, 2004.

**Humanities and Social Sciences Seminars for this Term:**

29 April (Friday) Munro Seminar Carl Hoeffler (Barcelona). "Chance, Time and Causation"

3 May Joshua Greene, Princeton University. "Cognitive Conflict and Control in Moral Judgment"

7 May (Friday) Munro Seminar Maria Farland (Fordham). "Decomposing City: Walt Whitman's New York and the Science of Life and Death."

14 May (Friday) Munro Seminar Clementine Oliver, Caltech/Huntington Fellow. "Where Do Pamphlets Come From? Political Writing in Late Medieval England"

21 May (Friday) Munro Seminar Justin D'Arms (Ohio State). "Objectivity in Taste and Emotion"

28 May (Friday) HPS Seminar Brian Copenhaver (UCLA). "From Magic to Science: Seeing a Way Out"

**Dance Classes**

All classes meet in the Braun Gym multipurpose room. There are 8 classes in each series. No special clothing or shoes are required for the beginners' classes. RSVPs required only for the bellydancing class. To be added to our mailing list, go to <https://utils.its.caltech.edu/mailman/list-info/troupe-list>. All classes are co-sponsored by the GSC and ASCIT, with additional funding from Campus Life and Graduate

**Housing.**

1) Beginning Bellydancing Saturdays, 12:45-1:45 PM, begins 4/3; Professional Instructor: Leela; Trial class fee: \$5 for students, \$8 for others; Caltech students full term fee: \$20 (\$2.50 per class!). Other Caltech community members full term fee: \$50 (\$6.25 per class!) CLASS SIZE IS LIMITED so RSVP to Kathy. Kelly@caltech.edu

2) Hip-Hop for Advanced Beginners; Thursdays, 9-10 PM, begins 4/1; Professional Instructor: Collette Sibal; Trial class fee: \$5 for students, \$8 for others; Caltech students full term fee: \$20 (\$2.50 per class!). Other Caltech community members full term fee: \$40 (\$5 per class!)

Interested in Applied Math in a broad sense? What is research in graduate school? And where does it lead outside of academia? Join the new student chapter of SIAM! (Society for Industrial and Applied Mathematics). We organize events to bring together undergraduate and graduate students, from all departments, to come and hear cool talks and vital career advice. Here's a sample of our activities:

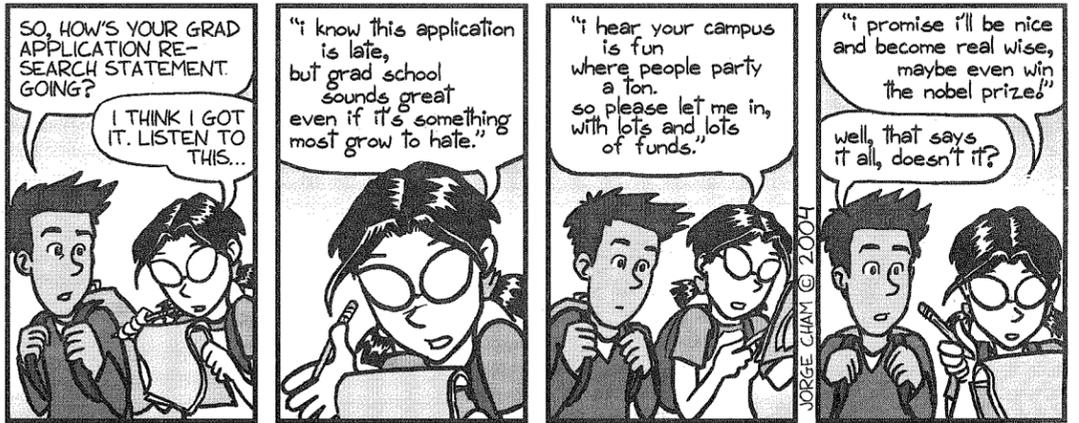
- The "Meetings on Mathematics in Industry" are big, quarterly events, where we get top mathematicians to come and talk about their work in the Industry.

- In addition to these quarterly meetings we organize a weekly student seminar with speakers mostly from the ACM, CDS and CS departments. Undergrads are welcome to participate and present their work. This year several talks focused on the IEEE's Top 10 algorithms of the 20th century - this Friday is on the Fast Fourier Transform. Come and join us at noon in room 200 Guggenheim. Lunch is provided.

Sign up for free student membership to SIAM during the Google event, and receive a free subscription to 'SIAM News' and 'SIAM Review'. Stay informed on the upcoming chapter activities by joining our mailing list. For more info and to sign up, visit [www.its.caltech.edu/~siam](http://www.its.caltech.edu/~siam).

**Racquetball Challenge Court.**

Wednesdays, 5:30 - 8 PM, Braun Gym. Show up to the Racquetball club's challenge court and take on anyone here. We usually have two reserved courts, and we play winner stays on. Challenge yourself and a worthy opponent! Everyone is welcome and we normally have all skill levels show up (including beginners). And if you don't know how to play, look for our next monthly club sponsored lesson. You can borrow the necessary equipment from the front desk.



**Excitement. Adventure. Surprise. Thrills.**

This ain't your parents travel agency... it's yours.



Paris.....\$467  
London....\$426  
Madrid...\$602  
Fiji.....\$765

Air, hotel & transfers:

**HAWAII**

5 night accomm.

From: \$454 LOS CABOS  
4 night accomm.

From: \$464

Fare is round trip from LAX and prices are per person. Subject to change and availability. Tax not included. Restrictions and blackouts apply. Fares are valid for students, faculty and youth under 26.

One stop. No hassles.

We've got everything you need for your next trip.

**STA TRAVEL**  
[www.statravel.com](http://www.statravel.com)

54 South Raymond Ave  
(626) 793.5595

**STUDENT TRAVEL & BEYOND**

ONLINE >> ON THE PHONE >> ON CAMPUS >> ON THE STREET

Business Plans  
Financial Models  
MBA, 20 years experience  
Email [jkennedy@ant91.com](mailto:jkennedy@ant91.com)  
Or call 310 641 3511 x14

Toyota, Cressida, '89,  
D.Blue, loaded, snrf,  
xclnt condit., new tires,  
156 K, \$3495 obo.  
Ph(626) 296-8567

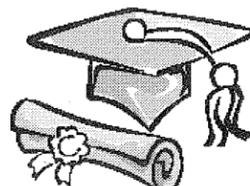
**BAMBOO TEA HOUSE**  
Tea as a way of life  
700 E. Colorado Blvd.  
Pasadena  
Across from Vromans Bookstore  
(626) 577-0707

**Congratulations to all 2004 Degree Candidates!!**

The Bursar's Office will be scheduling your In-Person Exit Interview soon. This process is designed to inform you of the status of your student account and furnish you with loan related information. This interview will be conducted in our office, which is located in the Center for Student Services Building, room 120.

To find out more about this procedure please visit our website:  
[www.bursar.caltech.edu/checkout\\_grad.htm](http://www.bursar.caltech.edu/checkout_grad.htm)

Our staff is here to make this procedure easy and friendly.





H. Gerard Schwartz, one of this year's distinguished alumni and President of the American Society of Civil Engineers, speaks at a conference for The Infrastructure Security Partnership.

## Distinguished Alumni Represent Eminence in Industry, Academia

By MARK WHEELER

PASADENA, Calif. -- One way to measure how well educational institutions educate their students is to note what kind of mark their alumni make in the real world. Each year since 1966 the Alumni Association of the California Institute of Technology has acknowledged those graduates who have attained extraordinary achievement in business, their community and in their professional life.

This year, six graduates—leaders in science, industry and academia, have been selected to receive the Institute's Distinguished Alumni Award. The awards will be presented at a ceremony on Saturday, May 15, during Caltech's annual Alumni Reunion Weekend and Seminar Day.

The Distinguished Alumni are M. Blouke Carus (BS '49, electrical engineering), Narendra (Naren) Gupta (MS '70, aeronautics), Kenneth Kellermann (PhD '63, physics), Robert Kirshner (PhD '75, astronomy), Gerhard Parker (BA '65, engineering, MS '66, electrical engineering, PhD '70, electrical engineering) and H. Gerard Schwartz Jr. (PhD '66, civil engineering).

M. Blouke Carus is the chairman of Carus Corporation, a holding company that owns Carus Chemical Company. Based in Peru, Illinois, Carus Chemical is a provider of chemicals and

services for water and wastewater treatment, air purification and other environmental applications. The company is also one of the world's largest manufacturers of potassium permanganate, which is used to "oxidize" soluble manganese and iron in drinking water

so they can be removed by filtration. If these compounds were left untreated, they would cause staining of plumbing fixtures and impart a bad taste to the water.

Carus is also the chairman of Carus Publishing Company, which produces educational materials, most notably a research-based reading and writing program for children in grades K through sixth. The publisher produces a basic reading curriculum that is used extensively in California.

Narendra (Naren) Gupta is the co-founder of Integrated Systems Inc., which later merged with another company to form Wind River, the dominant maker of software for such diverse computing devices as airplane radar systems and DVD players. He now serves as vice chairman of that company.

Gupta also serves on the boards of a number of companies, including the Digital Link Corporation, a data communications and wide-area networking equipment manufacturer, TIBCO Software, Quick Eagle Networks and the American India Foundation. Gupta was elected a fellow of the Institute of Electrical and Electronic Engineers in November 1991.

A radio astronomer, Kenneth Kellermann is a senior scientist at the National Radio Astronomy Observatory (NRAO), a research professor at the University of Virginia and an outside scientific member of the Max Planck Society. He has been affiliated with NRAO since 1965, serving for a period of time as the observatory's assistant director. Kellermann's research interests include radio galaxies and qua-

sars, the history of radio astronomy and the development of new instrumentation for radio astronomy. His work has been recognized with such awards as the Warner Prize of the American Astronomical Society and the Gould Prize of the National Academy of Sciences. Kellermann is a member of the International Astronomical Union, the American Astronomical Society, the National Academy of Sciences and the American Academy of Arts and Sciences.

The author of the book *The Extravagant Universe: Exploding Stars, Dark Energy and the Accelerating Cosmos*, Robert Kirshner has also written more than 200 research papers about supernovae, the large-scale distribution of galaxies and the size and shape of the universe. After postdoctoral work at Kitt Peak National Observatory and a stint at the University of Michigan, Kirshner joined the faculty at Harvard University, where he is the Clowes Professor of Science and served as chairman of the astronomy department for seven years.

He was also associate director for optical and infrared astronomy at the Harvard-Smithsonian Center for Astrophysics from 1997 to 2003. Kirshner is a member of the American Academy of Arts and Sciences and the National Academy of Sciences and is currently serving as president of the American Astronomical Society.

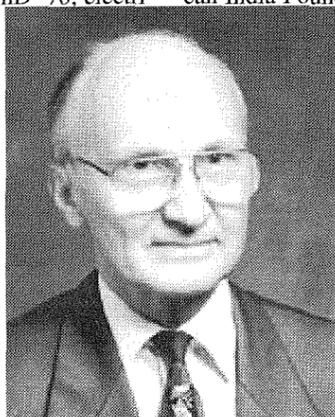
Gerhard Parker earned all three of his degrees at Caltech. After his long residence at the Institute, he joined the Intel Corporation as a member of the technical staff. In 1977 he was named vice president and director of technology development and in 1988 became senior vice president in charge of manufacturing, technology development, purchasing, construction, quality and planning.

In this latter position, Parker managed Intel's worldwide expansion of production capacity



Courtesy of www.windriver.com

Narendra Gupta



Courtesy of www.iwu.edu

M. Blouke Carus



Courtesy of www.actconferences.com

Gerhard Parker

## Four Faculty Selected To Join Elite Academy

By ROBERT TINDOL

PASADENA—Four members of the California Institute of Technology faculty are among the 72 new members and 18 foreign associates named to the National Academy of Sciences on April 20. The election was announced during the 141st annual meeting of the Academy in Washington, D.C.

Caltech's newest members are Donald Helmburger, who is the Smits Family Professor of Geological and Planetary Sciences; Andrew Lange, who is the Marvin L. Goldberger Professor of Physics; and Stephen Mayo, a professor of biology and chemistry and a Howard Hughes Medical Institute associate investigator. David Stevenson, who is the George Van Osdol Professor of Planetary Science and a native of New Zealand, was named as a foreign associate.

Helmburger's primary research interests are seismic wave propagation and the inversion of waveforms to recover detailed information about earthquake characteristics and Earth structure. He is particularly interested in mapping ultralow velocity zones at the core-mantle boundary and inner-core structure.

The former director of Caltech's Seismological Laboratory, Helmburger has been a member of the faculty since 1970 and previously was a research associate at MIT and an assistant professor at Princeton University. In 1997 he became the first recipient of the American Geophysical Union's Inge Lehmann Medal.

Lange is a cosmologist who has pioneered new techniques for studying the cosmic microwave background radiation, a relic of the primeval "fireball" that filled the universe at the time of the Big Bang. He has used telescopes deployed on high-altitude balloons over Antarctica to determine the fundamental geometry and composition of the universe.

A member of the Caltech faculty since 1994, Lange was previously an associate professor at the University of California at Berkeley. He earned his bachelor's degree at Princeton, and his doctorate at Berkeley. He was co-winner of the California Scientist of the Year honor in 2003.

Mayo, a member of the Caltech faculty since 1992, has worked for the last several years on a system for designing, building, and

testing proteins with novel biochemical properties. The system automatically determines a string of amino acids that will fold to most nearly duplicate the 3-D shape of a target structure.

Mayo earned his bachelor's degree in chemistry at the Pennsylvania State University, and his doctorate in chemistry at Caltech in 1987. As a graduate student, he cofounded the company Molecular Simulations, Inc. in 1985, and served as the company's vice president for biological sciences from 1989 to 1990. Mayo also cofounded Xencor in 1997 and serves on its scientific advisory board.

Stevenson, a member of the Caltech faculty since 1980, works in the field of theoretical planetary science, employing techniques from fields such as condensed matter physics and fluid dynamics to better understanding the earth, the other planets, and their moons. Much of his research involves the interpretation of data from spacecraft such as Galileo, which orbited Jupiter, but he is also involved in work on the nature and evolution of Earth's deep interior.

Stevenson earned his doctorate in theoretical physics from Cornell University, and was a member of the UCLA faculty before joining Caltech. He is the winner of the Whipple Award and the Hess Medal from the American Geophysical Union, and was honored by the late Gene Shoemaker, his wife Caroline, and A. Harris with the naming of the asteroid 5211 Stevenson to commemorate his work in planetary science.

The new appointments bring to 70 the number of living Caltech faculty who are members of the prestigious Academy. In addition, three current members of the Caltech Board of Trustees are Academy members.

Long considered one of the highest honors an American scientist can hold, the National Academy of Sciences is dedicated to the "furtherance of science and its use for the general welfare," according to a statement released Tuesday. Established by a 1863 act of Congress that was signed by President Lincoln, the Academy acts as "an official adviser to the federal government, upon request, in any matter of science and technology."

in the early 1990s. He served as executive vice president for the new business group beginning in 1998, guiding numerous internal start-ups, until his retirement in 2001.

H. Gerard Schwartz Jr. has had a long and distinguished career with the Sverdrup Corporation, which is now a part of Jacobs Engineering Group, Inc. His work was instrumental in developing and expanding Sverdrup into a national leader in construction management. Schwartz's projects included multibillion-dollar water and wastewater-treatment systems for the cities of San Diego, San Fran-

cisco and Detroit. He also worked as principal-in-charge for large civil-infrastructure projects, such as highways, bridges, dams and railroads.

In 1993, Schwartz was named president and chairman of Sverdrup/Jacobs Civil and he is currently a senior professor of civil and environmental engineering at Washington University in St. Louis. He has served as president of the Water Environment Federation and was president of the American Society of Civil Engineers from 2001 to 2002. Schwartz was elected to the National Academy of Engineering in 1997.

At the ceremony, the six recipients will receive an engraved pewter Tiffany bowl and a framed calligraphy certificate. In addition, their names will be placed on a plaque at the Caltech Alumni House alongside the names of all past recipients of the Distinguished Alumni Award.



D. Korta/The California Tech

Dr. Kevles pauses during his lecture last Wednesday. He wrote a book several years ago about a science ethics issue that involved a researcher in one of President Baltimore's former labs.

## Chemical, Nuclear War Provided Difficult Challenges for Scientists

*Continued from Page 1, Column 2*

against the inhumane nature of chemical warfare. It would not be until World War I that this ban would be tested.

One of the most infamous German scientists in modern history is the father of chemical warfare, Fritz Haber. His early work included the discovery of a mechanism for nitrogen fixation. This breakthrough research earned Haber a Nobel Prize in 1919. However, Haber would gain notoriety before achieving this pinnacle of scientific success.

The stalemate that had developed between the French and the Germans as a result of trench warfare led to the search of a new tactic. Haber suggested the use of chlorine gas since the gas had the ability to sink into the trenches and essentially suffocate the opposing troops. Although this violated the spirit of the declaration from the Hague Convention, it was legal on the technicality that it was released from a cylinder, not a projectile.

First used in Belgium, the chlorine gas was released from 5730 cylinders, each filled with 200 pounds of chlorine gas. By 1916, poisonous gas was being released by explosion, which violated the spirit and the letter of the Hague Convention ban.

In addition to chlorine gas, other gases were used including mustard gas, arsenic-containing gases and phosgene. Instead of attacking troops, these chemicals were also used to contaminate areas that were favorable for the opponent. For example, the lifetime of mustard gas is long, rendering an area inhabitable for days or weeks.

In World War I, an estimated 560,000 casualties resulted from chemical warfare, not including the numerous soldiers afflicted with chemical-related injuries.

The end of World War I brought discussion about the humanity of chemical warfare. There was growing concern regarding their use on civilians and their use in

conjunction with aerial attacks. A reporter at the League of Nations called chemical warfare "barbarous and inexcusable."

In 1922, the Washington Conference passed a ban on chemical warfare unanimously, but the French refused to ratify it, thus killing the resolution. Another attempt at banning chemical warfare came in 1925, when the Geneva Protocol called for a ban against the use of poisonous gases and bacterial agents. However, the protocol was defeated in the U.S. Senate.

Despite public outcry denouncing chemical warfare, a group of lobbyists formed in 1919 that represented the chemical industry. Their platform was that the development of more deadly chemical agents would serve as a deterrent to war. In one instance, the lobbyists cited that 24% of soldiers hit by artillery in WWI were incapacitated compared to only 2% for gas attacks and concluded that gas was 12 times more humane.

Such ridiculous claims did little to win over the public. Instead, the perceived detachment of chemists from the harsh realities of chemical warfare led to a negative public image of the chemical industry.

While the chemists of World War I fulfilled the social responsibility of science to the state, they lacked the ethics to earn public approval. However, the arrival of J.R. Oppenheimer would provide the American public with an image to replace that of Albert Einstein as the face of scientific genius. Often referred to as the father of the nuclear bomb, Oppenheimer led the Manhattan Project whose goal was to beat the Germans in the development of a nuclear bomb.

Once the Germans were defeated, the purpose of a nuclear bomb seemed unclear. However, Oppenheimer spearheaded a majority opinion that supported the use of a nuclear device on Japanese civilians in order to save the American lives that would be lost

in a land invasion of Japan.

Although Oppenheimer and his colleagues provided the science and technology to defend United States and to protect democracy against fascism, they also gave the politicians in Washington the tools to destroy cities and kill civilians. This moral dilemma would begin to wear on Oppenheimer after World War II.

After the Russians successfully tested a nuclear device in 1949, the United States pursued the development of a hydrogen bomb. Serving as the chair of nuclear energy and weapons, Oppenheimer was opposed to the hydrogen bomb. He saw the bomb as a weapon of terror, a weapon of unlimited power capable of taking out millions of civilians.

Despite wanting to resign from his post, Oppenheimer continued as a "good soldier" and followed President Truman's orders to develop the hydrogen bomb. However, Oppenheimer would be forced from his position in 1953 due to political fallout.

Through these two examples, Kevles successfully pointed out the balance between good and evil: power, esteem, funding, professional ambition and technological power versus the burden of being responsible for the deaths of many people. It is this paradox that links together science, arms and the state.

## Despite Flaws, Actors Deliver Superb Shows

*Continued from Page 1, Column 3*

humor and as the show progresses, the humor becomes a bigger and bigger part of the overall piece.

The first piece, *Poor Little Lambs* by Stephen Gregg, is a didactic comedy about a senile grandmother whose grandkids play a cruel game on her at a softball game. As an opener, this play is not as flashy as it could have been; in addition, it is unmerciful to latecomers, requiring the viewer to pay attention from the beginning to understand the end. While I would not have started off the production with such a serious, involved piece, I applaud the actors and director for undertaking this piece at all, as it is a difficult one to perform.

The second play, *Picture Hearts*, written by Caltech's own Raajen Patel '04, is the only one labeled as "serious" in the program. The piece is, indeed, semi-serious, but as a reflection on college life it is quite humorous, as the audience can identify with the exaggerated plights of the characters. *Picture Hearts* is a concatenation of three related scenes which may well be called snapshots of college life. For something actually written by a Techer, this play is incredibly good, hell, it's pretty darn good, period. While at first glance the laughs are less sophisticated than those evoked by the previous play, just thinking about the material presented in *Hearts* and putting it all together makes the play seem a lot deeper, with far more subtle themes than those created by the plot twist at the end of *Lambs*.

The final three productions are just humorous. *English Made Simple* by David Ives and *Playwriting 101: a Rooftop Lesson* by Rich Orloff, the third and fifth plays performed, have a remarkably similar structure, which is exaggerated by having both plays directed by the same

director and feature an identical cast of three. The first features a narrator that walks the audience through several versions of a hello at some sort of reception or cocktail party. The second has a theater professor explaining the drama behind a man stopping another man from jumping on the roof. While the plays are superficially similar, a nearly-identical presentation of both of them does not give proper attention to the subtleties that distinguish one from the other. However, both of these plays were the best part of the one-act performance.

Finally, the fourth production was the well-known *Variations on the Death of Trotsky*, also by David Ives. The *Variations* were never my favorite piece, but this production showed the play at its best. It ran crisp and quick and was over before it was boring, just like a good production should behave.

In short, all the productions were pretty darn good. While some plays appeared more polished than others, all were worth seeing. As an old stage manager, I can only find one major point of criticism to the actors: a few need to make sure they stay in character onstage, especially when they are not speaking. Considering no one who auditioned was turned down for a part, however, the acting was surprisingly good.

If the one-acts will be repeated next year, which is unclear, I do suggest that is that more care be taken in selecting the plays. While all were excellent, all three final plays had the same structure, namely variations on a simple chain of events. But perhaps this criticism is too serious, after all, the point of the One-Acts, in my opinion, is that they are really, really fun. And they are. So if you haven't seen it yet, find some time Monday evening. It is well worth the time.



Courtesy of donut.caltech.edu

Kayte Fischer, left, helped organize One Act Theater, and Raajen Patel wrote and directed one of the plays.

The California Tech  
Caltech 40-58  
Pasadena, CA 91125