

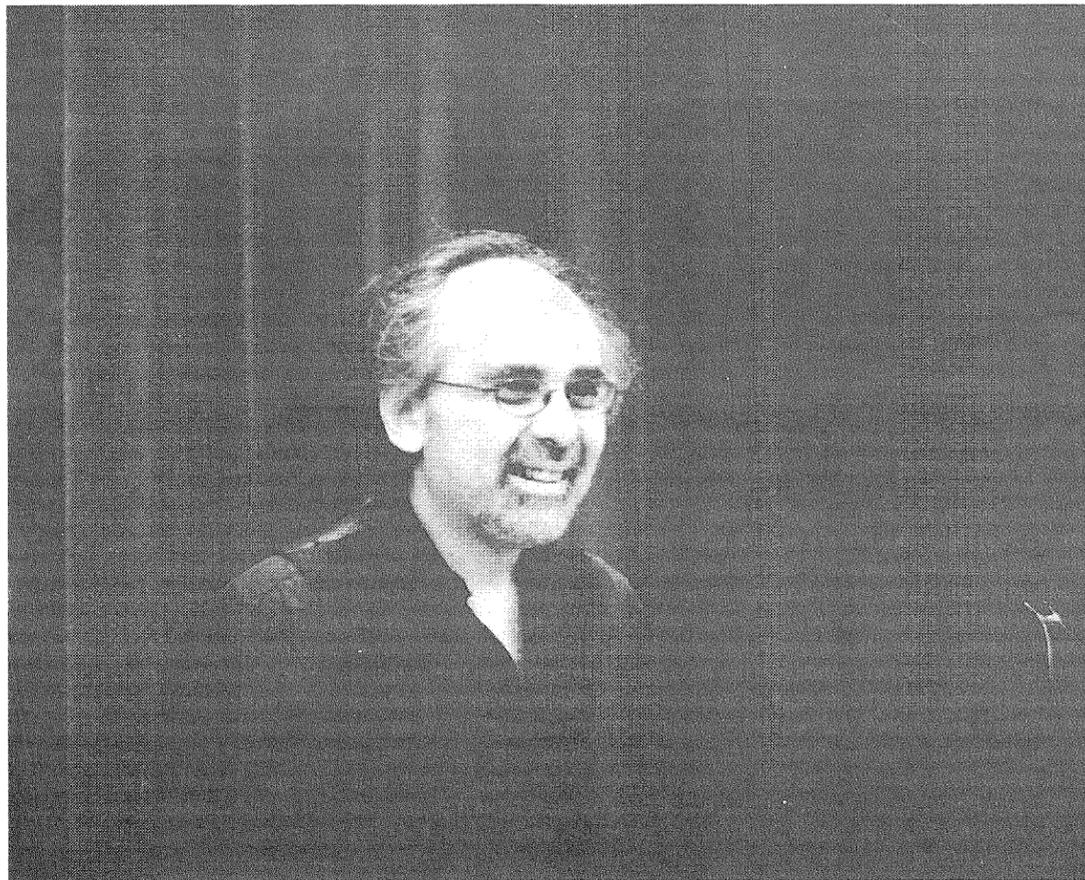


The California Tech

VOLUME CVI, NUMBER 16

PASADENA, CALIFORNIA

FEBRUARY 14, 2005



A. Green/The California Tech

Art Spiegelman, who broke a Beckman rule by smoking, outlines the history of comics and speaks about how the art form has improved over the years.

History of Comics Discussed By 'Michelangelo and Medici' of Art

By ZHIYUN GUAN

Comics may look simple and ephemeral to many, but they are anything but. The history and changing identity of comics as an art form was the subject of Art Spiegelman's lecture, "Comix 101", on Wednesday in Beckman Auditorium. Called the "Michelangelo and Medici" of the comic world, Mr. Spiegelman helped bring the medium into the world of serious art and literature.

A Pulitzer Prize recipient, he is widely known for his graphic novels *Maus*, an account of his family's survival during the Holocaust, and *In the Shadow of No Towers*, a reflection on the 9/11 terrorist attacks. Wednesday's lecture was part of the Words Matter project,

which brings renowned writers to campus to lecture and interact with students.

Engaging the audience with his conversational tone and wit, Spiegelman began by imploring, "think of this as a performance. I get to play an obsessive-compulsive cartoonist rambling on and on about the medium that he fell in love with at an early age." Everything he knows, Spiegelman said, he learned from comics including how to read. "I want to make a case for comics as some sort of art," he concluded. The mind, Spiegelman explained, works like a comic, using "small bursts of language" as well as simple images.

Comics that are truly art have a personal reach, and tell a story by creating "time turned into space",

with vital importance placed on what happens between panels. They are vastly different from pop art that imitates the style of comics, of which Spiegelman showed some examples and described as too abstract and non-narrative.

Importantly, comics are not "a rarefied art that's hermetically sealed", but one that interacts with readers, Spiegelman pointed out. As the comic is sidelined from the mainstream media, it must "reinvent itself as art or die", he said.

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Freshman Application Numbers Fall Slightly

By DAVID CHEN

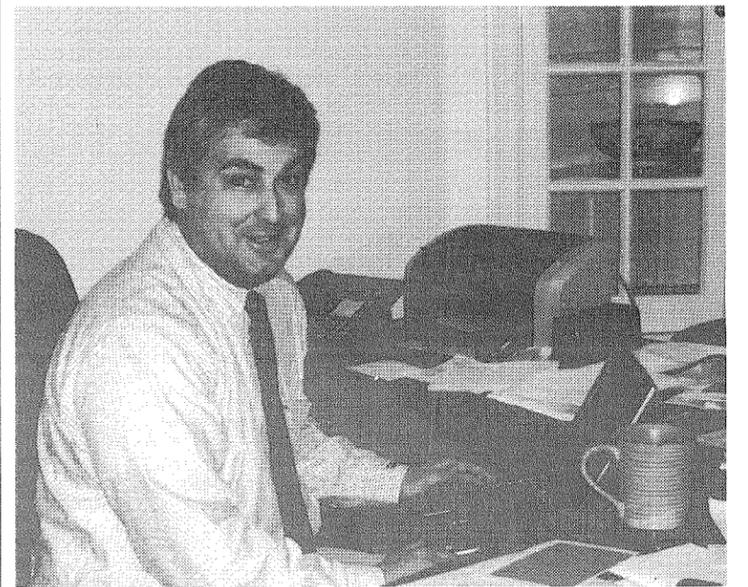
Although most current Caltech students are more concerned with their next problem sets, there once was a time when they were primarily worried about one issue, whether that big envelope would come. Deciding who will be the future undergraduates of Caltech remains an important issue, and though there are a few changes in the admissions world, Caltech is primarily following its prior trends.

Caltech admitted 154 students out of 444 applicants for the early action pool. This is roughly the same number of applications as last year, although slightly lower. In addition, the number admitted early is slightly lower

than last year, although the committee did not purposefully seek to admit less applicants from the early pool. For comparison, MIT also had slightly fewer applicants for early action this year, with 2,822 applications compared to last year's 2,833 applicants.

The admissions committee is composed of undergraduates, faculty members, and admissions officers. There are about 16 faculty members on the committee. The current undergraduates serving (the list on the website does not include all undergraduates on the admissions committee) are Tim Boyd, Meng-meng Fu, Ben Golub, Warner Leedy, Peter Foley,

Continued on Page 2, Column 1



L. Tran/The California Tech

Admissions Director Richard Bischoff has plans to improve pre-fresh weekend to help attract more students.

Olympic Bronze Medalist Helps Recognize Our Women Athletes

By ALEX SIEGEL

Caltech gets its share of lectures by scientists and engineers, but when an Olympic medalist and member of International Olympic Committee agrees to give a lecture it's sure to turn some heads. The Women's Center and Caltech Athletics sponsored Anita De-

Frantz to give a talk last Wednesday in Braun Gym in honor of National Women in Sports Day.

Anita DeFrantz won a Bronze medal in rowing during the 1976 Olympic Games. Afterwards, she went to Law School and earned her degree. She became president of the Amateur Athletic Foundation based in Los Angeles. She

is also a member of the International Olympic Committee and became the first ever woman and African American to become a vice president on the IOC's executive board. Despite her busy schedule, she still finds time to go on recreational rowing trips in Marina del Rey.

DeFrantz feels that playing sports is "one of the most important things we do as humans." She discussed some of the challenges faced in college sports today. She described Title 9, the law that requires equal government funding for both male and female college sports programs. Despite many people's dislike for Title 9, DeFrantz "put[s] the fault elsewhere, on decision makers" not on Title 9 itself.

DeFrantz went on to discuss the challenges that she faced as a female Athlete. In the late 60s and into the 70s, team sports for women finally entered the Olympics. The Olympics have become increasingly equal in its ratio of men to women athletes. In fact, the Olympics in Athens this year set a new record for highest per-

Continued on Page 2, Column 1

Film Shows Subtlety Of Bullying by Girls

By CHRISTINE CHANG

Most often, the term "bully" evokes images of a large boy threatening to take away a smaller boy's lunch money. However, until recently, many have ignored the more subtle bullying between girls. While males blatantly show their aggression, females use the complex societal web and rumors to stab at their perceived enemies. Held by the Women's Center, a documentary titled "Mean Girls: Mind Games," which explores the lives of multiple girls as they traverse the subtle paths of school-ground politics, was shown on February 10. "For girls, it is be popular or perish," said the narrator.

Contrary to the physical aggression of males, relational abuse is more common among girls. In the case a middle school girl featured

in the video, rumors were spread about one of them being a "tease" with the boys. Rather than face the alleged gossip, who also was one of her friends, she chose to defend herself with others in the group and convince them to join her side. Soon, the group was effectively split between the two camps. However, the situation was decided somewhat when the "queen bee," the most popular girl in school dismissed the rumors and welcomed the girl back into the group.

"The hardest thing is the competition between girls," said Michelle, a senior attending an all-girls high school at the time the video was shot.

Often, the competition between girls could lead to the invention of rumors against one or both of the



D. Korta/The California Tech

Olympic Bronze Medalist in Rowing Anita DeFrantz speaks at Braun during Caltech's recognition of National Women in Sports.

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Sports Management Still Lacking Women

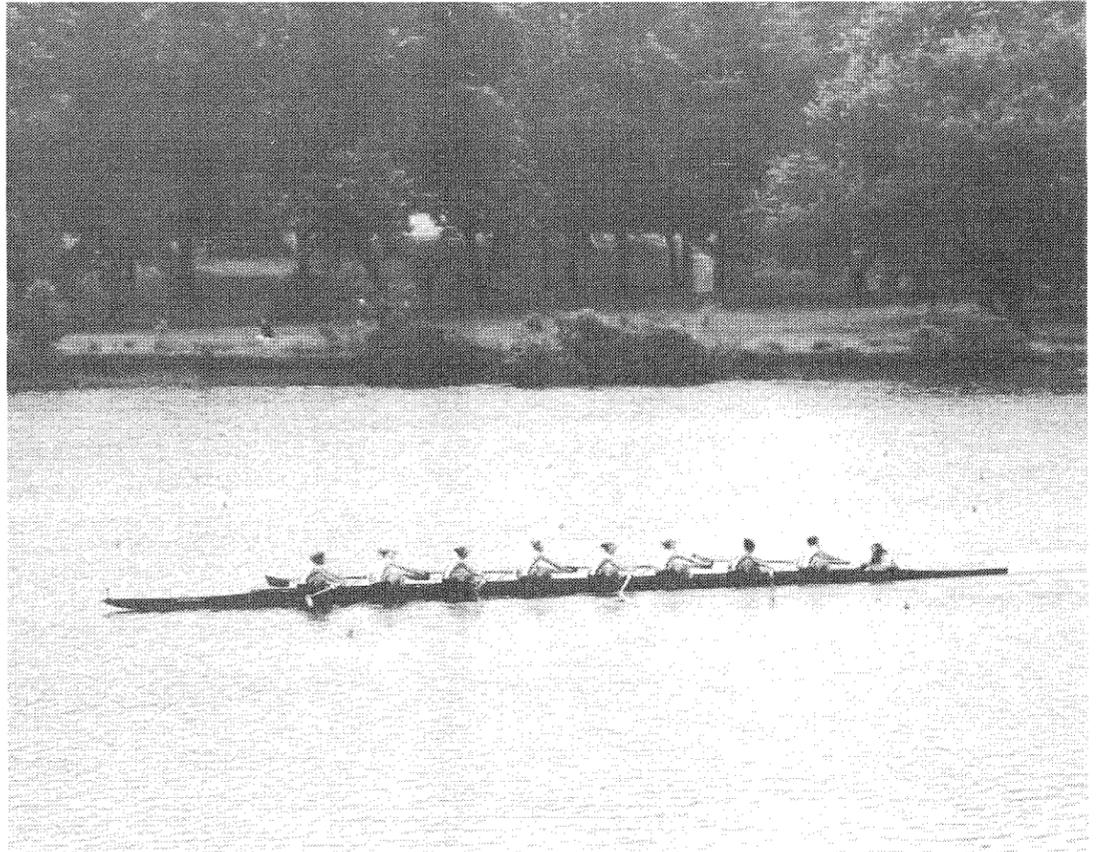
Continued from Page 1, Column 5

centage of women participating in the games, reaching 40.6%. DeFrantz feels that this shows a big improvement over previous years, though she hopes to someday achieve an even more equal ratio. DeFrantz closed with her belief that the "last challenge is having women in the management of sports," an area of athletics that still consists of many more men than women.

The talk was followed by a question and answer session. DeFrantz was asked about her role in the Amateur Athletic Foundation of Los Angeles. Founded with the excess money from the 1984 Olympic Games in Los Angeles, it spent much of the money on Grants for youth sports programs in Los Angeles. Their mission is to "increase public understanding of the role of sports in society." In order to further this goal, they have collected over 200,000 pages of information in one of the largest

online sports libraries that exist today.

DeFrantz closed with her retelling of the 1976 Women's rowing race, in which she and her team won a bronze medal. Her team was placed in the seventh slot, way off to one side in the deeper ocean, where the current was naturally stronger. They knew it was unfair, but they were very determined to take home the gold. Though they later found out that no one expected them to win, they pushed themselves to their limits and won a medal anyway. Racing at 36 strokes per minute, they managed to finish third despite the challenges of their lane. They felt proud at their accomplishment, mad at not having won gold, and very sick from the build up of lactic acid, all at the same time. After that day, DeFrantz remarks, "I realized how hard I could work without dying."



Courtesy of www.uwalumni.com

After winning a bronze medal in rowing in the 1976 Olympics, DeFrantz went to law school. She later became a vice president of the executive board of the International Olympic Committee.

Peers See Increase In Application Counts; Early Acceptance Notices

Continued from Page 1, Column 5

Katie Richardson, Vicki Loewer, Wendy Xu, Lisa Fukui, Shelby Montague, Royal Reinecke, Mayra Sheikh, Sarah Wilhoit, Julia Ma, and Kayte Fischer.

Caltech continues to use an early action program, allowing applicants to apply to multiple schools during the early application period. Many peer schools now use single-choice early action, limiting the applicants to only that school during the early period. Stanford and Yale moved to a single-choice early action program two years ago from an early decision program, which is even more restrictive and binds the prospective student to attend the school if admitted early. In addition, Harvard moved to SCEA from early action two years ago. Prospective techers, however, are still able to apply to both MIT and Caltech early action.

Most of Caltech's peers saw their applicant pools increase this year. Harvard, for example saw an increase of 7.2% in its early action pool. This change was possibly caused by Harvard's President, Lawrence Summers, declaring that families earning less than \$40,000 no longer have to pay a parental contribution (the student would have to pay a small amount from savings or work). Stanford had almost a 6% increase in its EA pool, although Yale saw a decrease of 3% this year after its meteoric rise two years ago.

Of the early applicants, a couple hundred were deferred for consideration during regular decision. Caltech's reg-

ular decision pool currently consists of 2750 applicants, compared to 2761 applications for last year, although Admissions Director Richard Bischoff noted, "There

an application may come from Bulgaria, or China, that took a long while to make it here."

Mr. Bischoff praised the faculty and students on the admissions committee for an "amazing job. Because they were able to do such a terrific job, reading files and turning them around, we actually got our admissions decisions out December 10th, rather than December 21st, when we mailed them out

are always applications that come in late, from around the world... when suddenly

last year." He also praised the work of David Levy and the financial aid office, who

were able to mail preliminary financial aid announcements on December 20th-21st.

Of course, after admitting potential students, the admissions office is trying to recruit these students to come here. Our overall yield last year was 37%, which produced a class of 207 students. The admissions committee plans for an incoming class of 215 students, the number that Caltech traditionally aims for. The dates for Prefrosh Weekend have already been decided, and the prefrosh will have all needed info by the end of this month, to help them arrange their travel plans. House representatives have already been appointed, and four students have been invited to be on the planning committee for Prefrosh Weekend.

"At the admissions office, we've been looking at Prefrosh Weekend, trying to figure out how we can make it a better experience, and not just a better experience for the prefrosh but also for our current students," explained Mr. Bischoff.

Mr. Bischoff described his impression of Prefrosh Weekend last year, when he was visiting Pasadena with his wife. He explained, "We

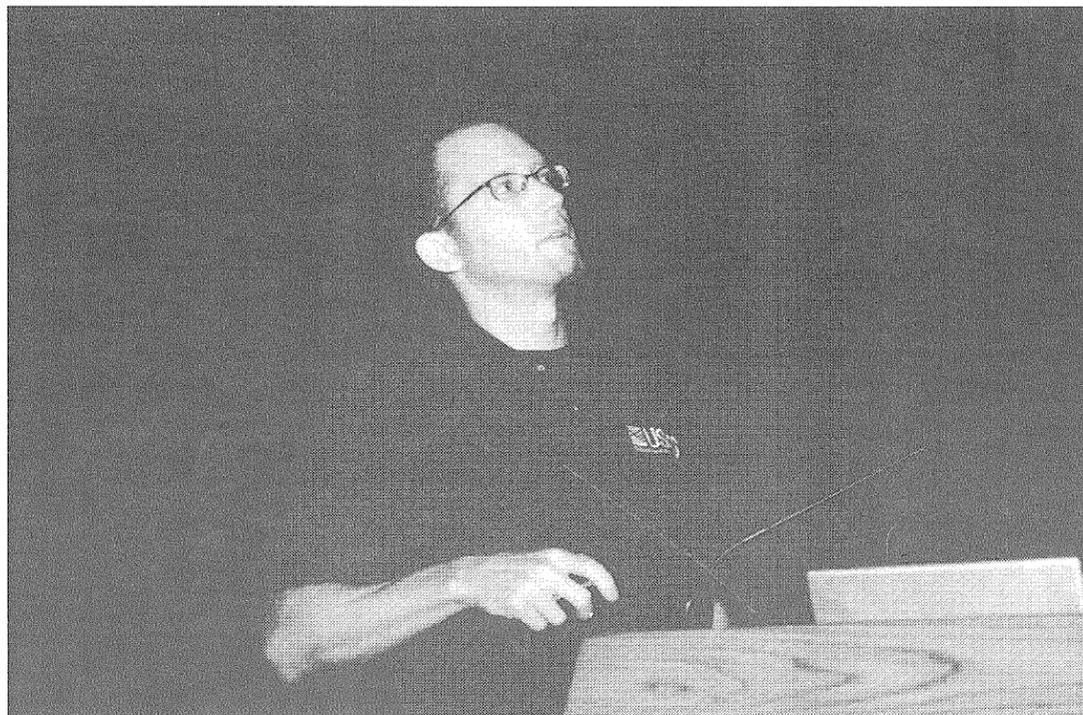
were feeding the prospective students, but student hosts were not invited. Particularly on this campus where students are not offered meals on the weekend, to have our prospective students come and eat lunch and say to the hosts, 'Oh, you gotta go fend for yourself'... We're not going to do that. We're going to make sure that the students who are hosting are able to eat lunch with their prospective students. We want to treat the hosts well."

Mr. Bischoff emphasized that the prefrosh should be well-treated, and they should feel respected. Responding to a question regarding the extreme nature that some students display during Prefrosh weekend, Mr. Bischoff said, "But if the experience is atypical of life at Caltech, then we're not doing these prospective students any favors. And we're certainly not doing Caltech any favors if this somehow deprives the community of any students that should be here because they've been scared away."

The admissions committee will continue to be hard at work, reading over the regular decision applications and deciding the remaining students who will receive the coveted envelope.



L. Tran/The California Tech



D. Korta/The California Tech

Research Scientist Matt Gerstenberger outlines a USGS study that aims to use past earthquake data and knowledge of aftershocks to help predict the effects of earthquakes.

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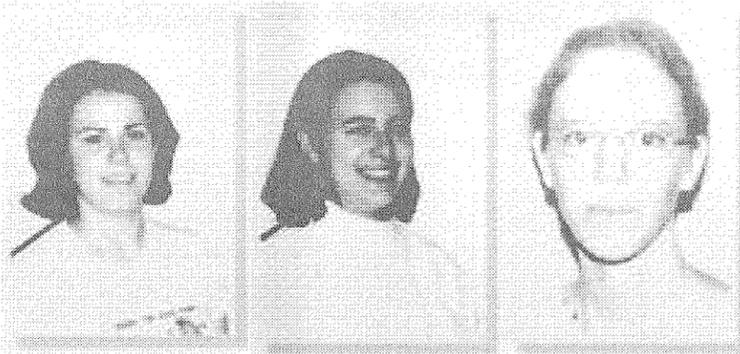
Women's Fencing Pulls Out Win Against Stanford, Women's Tennis Beats Masters College; Men's Baseball Opens Season

By MIKE RUPP

Caltech Athletics Weekly
Roundup
February 7, 2005

Fencing: Women's Epee upsets Stanford

The Caltech Fencing program had a fine performance this past weekend at a four-team NCAA meet at UC San Diego. Teams from Stanford University, the Air Force Academy, Northwestern University, CSU Fullerton and UC San Diego all competed. The highlight of the Invitational for Caltech was the lopsided 8-1 upset by the Women's Epee team over Stanford University. Sophomores Katherine Harvard, Emma Schmidgall and Klimka Szwaykowska gave Caltech its sole win of the day, competing against some of the best NCAA teams in the country. The Men's Epee team, with Senior Eric Cady, Freshman Alexei Harvard and Junior John McNamara fell just short of mirroring the accomplishments of the women's squad, losing to Stanford, 4-5. The Men's Sabre team was impressive in a 4-5 loss to Northwestern. The program's next meet comes this Sunday at the CSU Fullerton Invitational. They'll be gearing up for the NCAA Western Regionals on March 3-4.



courtesy of www.athletics.caltech.edu

Women's Epee (from left to right) Sophomores Katherine Harvard, Emma Schmidgall and Klimka Szwaykowska shocked Stweekend, winning their head-to-head match 8-1.

and her tough work ethic made every team much better because Beth took part." Dorman and three other Caltech Swimmers set the 200 Free Relay record in 2002, and it still stands today. "[It has] given me something to look forward to," Dorman says of her four years on the Swim Team. "It's nice to interact with the other people on your team, follow their progress, and cheer for them. It's something in later years you can look back on and be proud of." A biology major here at Caltech, Dorman has plans to attend graduate school after she leaves Caltech, possibly to earn a PhD in genetics.



Courtesy of www.athletics.caltech.edu
Senior Beth Dorman.

at Caltech, Dorman has plans to attend graduate school after she leaves Caltech, possibly to earn a PhD in genetics.

Swimming and Diving prepares for SCIAC Finals

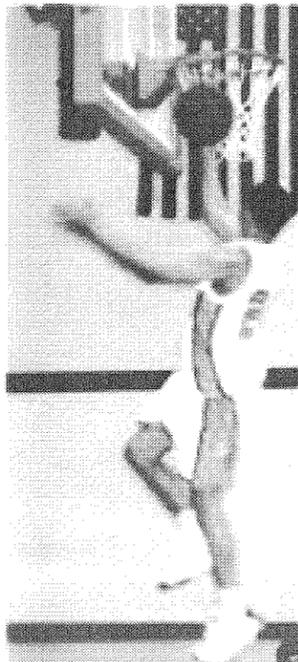
The Swimming and Diving Team is preparing to wrap up their season with the SCIAC Finals held February 17th-19th at the Cerritos Community Pool, hosted by Redlands University.

Divers Rebekah Eason and Ben Pelletier are expected to place highly in the conference, to lead the team toward a good finish to their year.

Men's Basketball narrows gap against Cal Lutheran, La Verne

The Men's Basketball team lost two conference games this past weekend, losing 53-78 at Cal Lutheran on Wednesday and then losing 44-69 at home to La Verne on Saturday. The La Verne game was competitive throughout the first half. Junior Scott Davies' field goal with 6:48 left in the half pulled Caltech to within one at 18-19, before La Verne finished with a 12-4 run. Junior Jordan Carlson's block and rebound with 52 seconds left in the half gave Caltech fans hope for momentum going into the second half, but Caltech failed to convert, and didn't threaten the lead again.

Caltech's scoring differential in SCIAC games has improved dramatically since last season, when the team finished with an average scoring deficit of 58.1 average against SCIAC opponents. That deficit average has fallen to 31.2 this season, an improvement of 46.3 percent. The team plays next on Wednesday night at Claremont Mudd Scripps. Their next home game is this Saturday night against Pomona Pitzer. Tip-off is at 7:30 PM.



courtesy of www.athletics.caltech.edu
Men's Basketball: Junior Day Ivy goes in for a lay up.

Davis, Women's Basketball, play tough 2nd Half against La Verne

Freshman Rene Davis broke out of her scoring slump to lead Caltech with 13 points against La Verne, as the team lost 28-62. After going into halftime down 35-5, Caltech's play improved dramatically in the second half, with the team shooting 32 percent from the field. Along with her 13 points, Davis collected seven rebounds, three steals and two assists. She also played impressive defense with an astonishing four blocks, three of which were within the first five minutes of the game. Near the end of the game, she stole the ball and took it the other way for a lay up, bringing some excitement to the Caltech faithful. Freshman Lindsay King added 12 points, nine rebounds and two assists. Earlier in the week, the team lost to Cal Lutheran, 51-89. King lead the team with 20 points and seven rebounds. The team plays its next game this Thursday night at Claremont Mudd-Scripps. Their next home game comes this Saturday against Pomona Pitzer. Tip-off is at 5:00 PM.

Women's Tennis pulls out tough one against Masters College

The Women's Tennis team improved to 2-0 on the season after their 5-4 win over Masters College this past Saturday. At #2 singles, Jenny Hsiao provided a huge boost of momentum for Caltech, as she came back to win in three sets, 2-6, 6-1, 6-2. The match came down to the #3 singles spot, where Caltech's Ann Leu was engaged in an epic battle against her opponent. Leu saved a match point, and finally emerged triumphant in a stunning 7-5, 4-6, 7-6 (7-4) victory. The team plays its next match this Saturday at home against Cal Lutheran. The match begins at 9:30 AM.

Men's Baseball opens season against Simpson; UC Santa Cruz

The Caltech Baseball team opened its season with three straight losses this past week. On Friday, the team hosted Simpson University. Senior Isaac Gremmer hit a two-run homer and Senior Jason Quimby went three-for-five. Freshman Shawn Surdyk pitched a complete game as Caltech lost, 8-13. On Saturday, the team played a double-header against visiting UC Santa Cruz. Gremmer pitched six innings for Caltech and had two hits and an

RBI in the 5-16 loss. Caltech lost the second game 15-0. The team plays its next game this Tuesday at Whittier. Their next home game is this Saturday when they host Bethany College at Pasadena High School in a double-header.

This Week

Men's Baseball
Tuesday, February 8
vs. Whittier College
2:30 PM - @ Whittier

Men's Basketball
Wednesday, February 9
vs. Claremont M-S
7:30 PM - @ CMS

Women's Basketball
Thursday, February 10
vs. Claremont M-S
7:30 PM - @ CMS

Diving
Saturday, February 12
@ SCIAC Prelims
9:00 AM - @ Cerritos

Women's Tennis
Saturday, February 12
vs. Cal Lutheran
9:30 AM - Caltech Courts

Men's Baseball
Saturday, February 12
vs. Bethany College (2)
11:00 AM - Pasad. High

Women's Basketball
Saturday, February 12
vs. Pomona-Pitzer
5:00 PM - Braun Gym

Men's Basketball
Saturday, February 12
vs. Pomona-Pitzer
7:30 PM - Braun Gym



courtesy of www.athletics.caltech.edu
Women's Basketball: Freshman Rene Davis

Show Your Pride!

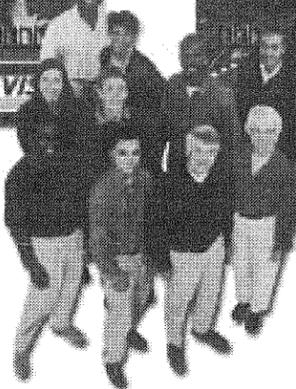


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After the Elections...

By SIMON QUE

First, a note to readers. In last week's issue of *The Tech*, Tammy Ma wrote an article because there were too few of them, and partly because I didn't have the time to write one. It'd be great if some of you wrote for *The Tech's* commentary section, whether on occasion or regularly. It would help Tammy fill up this paper and help the rest of us commentary writers carry the burden of having to write something for Tammy every week.

I don't care what you write about. If you can't think of something, here's a suggestion: I know that there are those of you out there who read my articles in this publication. So one thing you could do is write responses to my articles or your own political column. I welcome anyone who wants to do this.

The Iraqi people have voted. So far, the United Iraqi Alliance, a Shiite coalition under Grand Ayatollah Ali al-Sistani, has won over two million votes, as opposed to interim Prime Minister Ayad Allawi's just over half a million votes. What does this mean for the U.S.? According to *The Nation* columnist Robert Scheer, "This

vote the same way if this election were nullified and held again at a later time.

What happens when Iraqis decide that they aren't being allowed to govern themselves, and that they've had enough of the occupation? Come to think of it, that sounds like the position taken by Americans prior to the War of American Independence. Would there be a full-fledged revolt by Iraqis against the US forces? The ranks of the insurgency could grow as more dissatisfied Iraqis join them, just as many have done already. Another war with Iraq is something that should be avoided, especially if the last one has not shown good results.

Another point of concern is the fact that the apparent winner in the Iraqi elections, the UIA, has the support of Iran. One of the hopes of the proponents of forced regime change in Iraq was that democracy in Iraq would trigger a domino effect and spread to neighboring Middle Eastern countries. Now we see that the influence is running the other way: if al-Sistani's coalition were elected, Iraq could end up being influenced by Iran. If the US remained in Iraq, this may further heat up relations with Iran, which could become

"There are those within the U.S. government who find the results disagreeable. They should remember that the original goal of establishing a democratic Iraq has been reached."

empowers the Iranian-born and Tehran-backed Shiite religious and political leader, who has been very firm on wanting an accelerated timeline for a US withdrawal." I wrote a few months ago that in a truly sovereign Iraq, the Iraqi people have the final say in what goes on politically, over the wishes of the U.S. administration and coalition forces stationed there. Now comes the real test of Iraqi sovereignty. The people have spoken. They want the U.S. out of their country.

There are those within the U.S. government who find the results disagreeable. They should remember that the original goal of establishing a democratic Iraq has been reached. What would further occupation do? It would probably sway even more Iraqi opinions against the U.S. government. Extended occupation most likely won't make Iraqis want to vote in a different way, given that most of them already oppose the occupation. They'll probably

a target for US military action.

The other goal was freedom for Iraqis. Will Iraqis have it after the elections? Maybe their new government will give more freedom, or maybe less. But either way, they won't be free as long as the US occupation refuses to leave, against their wishes. Exactly what good can further occupation accomplish? Fighting terrorism, perhaps. But those terrorists are in Iraq, not in America. Iraqis apparently want the US government out more than whatever protection it can provide against terrorism. What they need is a chance at self-determination, not more occupation.

Now would be a good time for the US to pull out of Iraq. This would put a costly military venture to an end. It would avoid the risk of further military conflict. It would allow American troops to come back home. It would also respect the wishes of Iraqis—finally, an action with their full support.



Kurds celebrate their election performance.

Stewardship Committee Co-Chair Wanted Explanation of Duties

By KIM POPENDORF

The Stewardship Committee is a newly formed committee whose purpose is to provide efficient, open lines of communication with the Housing Office—the committee should be effective at improving the service Housing can provide to students and the caretaking of the student Houses. The committee is comprised of one representative from each House, a member of the Housing staff, and is co-chaired by a campus-wide elected student and Tim Chang, the Director of Housing. The committee will meet as necessary, but at least several times a term, and will be responsible for reviewing the needs of the Houses, including repairs due to normal wear and tear, accidental damage, or any damage due to willful acts. In the case of damages beyond normal wear and tear the committee will determine how much of the cost should be covered by the House and how much by Housing. The responsible House may then choose to cover their portion of the cost, or bill an individual responsible. Through student-conducted inventories of the Houses and scheduled discussion with Housing, we hope to increase the accountability of both the students to Housing, and of Housing to students, increasing the efficiency with which repairs can be made and helping to further the care and keeping of the Houses.

The duties of the student co-

chair will include setting up and co-running meetings of the committee, keeping abreast of issues relating to care of the Houses, being in close contact with the Housing office, being a resource to direct the needs of the other committee members and students to the appropriate people within Housing or maintenance, and serving as a liaison between the Stewardship Committee and the IHC on a regular but informal basis, and communicating with other offices or organizations as the need arises. This position will be especially important in the coming year with the renovation of the South Houses and the consequent housing of South House students in modular housing units on the Avery lawn and the lot across the street (north of the Holliston parking structure, on the East side of the street, by the fire station on the corner).

If you have any questions regarding this position or the Stewardship Committee in general, please contact the IHC chair (Kim Popendorf, kimpop@caltech.edu), the IHC (ihc@ugcs.caltech.edu) or your House Stewardship Committee representative.

If interested in the position, or would like to nominate someone for the position, sign ups are posted outside the coffeehouse, or sign up online at donut.caltech.edu. Elections for this position will occur with the general AS-CIT elections.

Author W. Mosley to Speak

By MARK WHEELER

The morning air still smelled of smoke. Wood ash mainly but there was also the acrid stench of burnt plastic and paint. And even though I knew it couldn't be true, I thought I caught a whiff of putrid flesh from under the rubble across the street.

PASADENA, Calif. - For mystery lovers, such prose would have to draw you in and make you want to read on. The words are Walter Mosley's, the book is *Little Scarlet: An Easy Rawlins Mystery*, and private investigator Rawlins is the recurring character that has helped make Mosley "a literary artist as well as a master of mystery," according to *The New York Times Book Review*.

On Friday, March 4, at 8:00 p.m., Mosley will be the featured speaker for the annual Michelin Distinguished Visitors Lecture Series. The event is free (no tickets or reservations are required) and will take place in Beckman Auditorium.

As a writer, Mosley is best known for his series of mysteries that take place in post-World War II Los Angeles, and feature his character Rawlins, an African American. Mosley's career was given a big boost in 1992, when then-president Bill Clinton named him his favorite writer. *Little Scarlet*, published in June 2004, was a *New York Times* bestseller.

Mosley, a Los Angeles native who now lives in New York's Greenwich Village, had his first Rawlins novel, *Devil in a Blue Dress*, made into a film starring Denzel Washington. His novels

depict the black experience of ordinary men: "Fully formed, complex black men have been absent from much of contemporary literature," he has said. His characters deal with what it means to be black and male in America while building a life of purpose and fulfillment.

In addition to his mystery writing, Mosley has written three other novels, two works of science fiction, and two nonfiction books. One of these, *Chain Gang: Shaking Off the Dead Hand of History*, published in 1992, explores a range of issues that include race, culture, and global politics.

This month, Mosley will be awarded the Lifetime Achievement Award at the 21st Annual Celebration of Black Writing Festival in Philadelphia. Later in the year, he will release his first book for young adult readers, titled *47*, that will blend history, science fiction, and adventure.

The Michelin Distinguished Visitors Lecture Series was established in 1992 by New York designer Bonnie Cashin in memory of her uncle, James Michelin, a consulting engineer, who had always hoped to attend Caltech. Previous speakers in this series have included architectural critic Vincent Scully, artist David Hockney, playwright Tom Stoppard, architect Frank Gehry, director Oliver Stone, opera singer Beverly Sills, poet Seamus Heaney, and authors Michael Crichton and Herman Wouk. The purpose of these lectures is to promote creative interaction between the arts and sciences.

Letters to the Editor Errors in Watson Lecture, Tuition Rate Hike Articles

Dear Editor,

Thank you for the article by David Chen on my Watson lecture. Could I please ask you to correct a few things that appeared in it?

The arc-minute separation between the orbiter and Venus was estimated from the point of closest (apparent) approach.

The fragment that was tracked was estimated to have initially decelerated at about 100 m/s². It was subsequently estimated to have decelerated at about 58 m/s². It was other luminous material shed that was estimated as having "essentially stopped".

The fragment trajectory was far from parabolic because of the importance of aerodynamic drag and the exponential atmospheric density dependence on altitude.

It was mentioned that Columbia was doomed because it was damaged on ascent and could not have reentered.

The estimate of the force that would have been exerted by the foam, if the incidence had been perpendicular, was estimated to be about 120 kiloNewtons, i.e., that corresponding to, approximately, the weight of 12 thousand kilograms. This is a scaling number and it was mentioned that a correspondingly smaller fraction would be applicable to the glancing incidence recorded by the video cameras.

I was surprised by statements offered in quotes, especially pertaining to manned missions, that I did not make, such as, "... if we insist on having people." What was said was that if increasing payload capability per kilogram was a goal, we don't know how to do that with people. Whether people are involved or not is a value judgment in which other considerations must also weigh in.

Finally, it was not said that alternative launch technologies discussed in the Q&A session "did not provide the proper thrust to leave earth." The issues are more complex, with answers that can only be arrived at through optimization, as mentioned in reply.

Thank you, again, for the article.

Paul E. Dimotakis
John K. Northrop Professor of Aeronautics
and Professor of Applied Physics

Dear Editor,

Thanks for Sonia Tikoo's coverage of the tuition increase protest. I am writing to correct a few of the figures cited in the *Tech* article from January 31, 2005. If we just calculate tuition, fees, room, board, and weekend meals, we get a 13.4% increase over two years.

AY 2003-04	\$33,561
AY 2005-06	\$38,050

These are tough increases any way you look at them, but 13.4% is definitely more positive news than 20.9%.

Best wishes,
Erica O'Neal, Ph.D.
Assistant Vice President for Student Affairs

Clint Eastwood's Million Dollar Baby Provides the Knockout, Then Leaves an Indelible Mark

By HARRISON STEIN

Note: For those concerned, this review is Spoiler-Free.

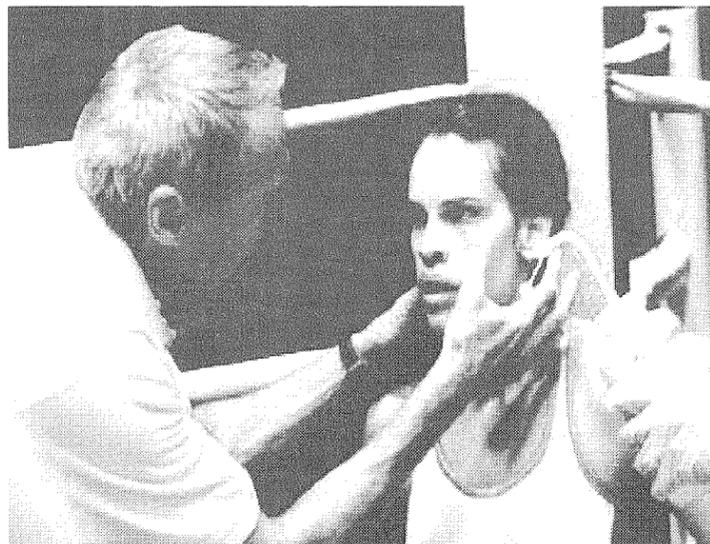
Last year, in reviewing Clint Eastwood's brilliantly acted, yet mind-numbingly disappointing *Mystic River*, I stated that Clint Eastwood's directorial skills had eroded like an aged baseball player. After re-watching Eastwood's 1991 Oscar winning masterpiece *Unforgiven* and viewing his latest classic, *Million Dollar Baby*, I can only arrive at one conclusion: I'm an idiot. As much as Clint Eastwood, the actor, changed the face of Hollywood during the 60s and 70s, his directorial efforts are, for the most part, more polished, more effective and more timeless than the films that made him famous. *Mystic River* is still a major hiccup on Eastwood's resume, but with *Million Dollar Baby*, he has redeemed himself as a director and shown that he can still act a bit.

Baby begins an intense boxing scene, a taste of what is to come. We meet Frankie Dunn (Eastwood), a crusty, hardnosed manager that teaches far more than he promotes, yet hasn't managed a title fighter in 10 years. After deftly coaching his latest contender to victory, Frankie runs into Maggie (Hilary Swank), a thirtysomething trailer-trash waitress with a passion for boxing. Maggie, yearning for one last shot to make something of her life, begs Frankie to teach her to box like a champion, but he promptly proclaims that he doesn't manage girls.

Maggie never takes a hint and invests her precious few dollars into a membership at Frankie's gym. Finally, after much prodding from his friend Scrap (the narrator, Morgan Freeman), Frankie agrees to coach Maggie, partly because he wants her out of his hair and partly because her energy and persistence is infectious. The decision becomes a turning point in both characters' lives as Frankie gets a second chance at being a father figure and Maggie gets an opportunity to fulfill her deepest aspirations.

The film follows this poignant Rocky-like storyline for a good 90 minutes as Maggie rises from the rubbles to become a championship

fighter and Frankie has a spiritual awakening. If the film had simply continued on this path, it would have gone down into film lore as a well-acted, expertly-directed, but somewhat typical sports mov-



Frankie Dunn (Clint Eastwood) encourages Maggie (Hilary Swank) during a fight in Warner Brothers' compelling *Million Dollar Baby*

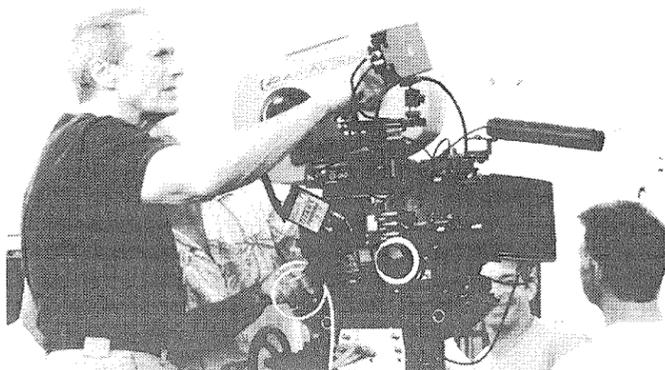
ie, along the lines of *Remember the Titans* or *Chariots of Fire*. Instead, it makes a 180 degree turn about 2/3 of the way through and becomes an entirely different movie. Of course, since the film is so powerful, I will not ruin the surprise for you, because part of the *Million Dollar Baby* experience is enjoying both sections of the film in completely different lights.

The ending has become a hot-button issue, however, I can ensure you that I do not agree with the opinions put forth by a bunch of cowardly critics who have spoiled the movie in their reviews. Diatribes by biased critics like Michael Medved cheapen the effect of this provocative picture, and you should ignore them at all cost. I will leave it at that.

Even before the compelling twist at the end, Eastwood, Swank and Freeman are at their best dur-

ing this haunting film. Eastwood brings a perfect tone to his character, as his raspy voice, biting comments, and defeated attitude perfectly fits the persona of a person of a man who has been KO'd

far more often than he has been victorious. We whole-heartedly believe his transformation, to the extent that his actions at the end



Clint Eastwood directs on the set of *Million Dollar Baby*.

Controversy aside, *Million Dollar Baby* is a stunning motion picture that deserves to be talked about, but not ruined. *Baby* packs a punch and an emotional wallop unlike any other movie released this year. It is something to treasure.

Nonetheless, the star of the show is 90210-babe-turned-Oscar-winning-actress Hilary Swank. When Maggie is rising

through the ranks with a title shot on her mind, Swank takes us along for the ride. Of the three actors, she shows the most raw emotion, and her scenes with her family are heartbreaking. Even though we only see her for two hours, we feel as if we have known Maggie for 30 years. Hilary Swank's portrayal might fall slightly short of Catalina Sandino Moreno's touching debut in *Maria, Full of Grace* and Natalie Portman's breakout role in *Closer*, but she is marvelous, and she is expected to take home her second statuette.

One of my primary problems with the highly flawed *Mystic River* was that Eastwood didn't seem to have any command of his material, and subsequently, the movie was improperly paced. Maybe the cure to all of his directing woes is to cast himself in his movie. When he is actually on camera, Eastwood can witness the dynamics of a successful film unfold right before his eyes. Since he can directly contribute to his project, he knows exactly how all the individual parts will mesh in order to form his vision. The technique has now worked splendidly in both *Unforgiven* and *Million Dollar Baby*, and if this film follows its predecessor, it too will take home the top prize at next month's Oscars.

In my opinion, *Million Dollar Baby* is the epitome of cinematic excellence because the acting, directing, camera work and writing are all remarkable; the story is compelling enough to grab our attention and remains shocking enough to hold it.

Controversy aside, *Million Dollar Baby* is a stunning motion picture that deserves to be talked about, but not ruined. *Baby* packs a punch and an emotional wallop unlike any other movie released this year. It is something to treasure.

**** out of ****



Free Tickets to see William Shakespeare's Measure for Measure

The first 16 Caltech students who apply for tickets at the box office for each February performance will get in FREE thanks to the Hallett Smith Fund.

The Beckman Political Internship

The Beckman Political Internship will be available again this summer. The internship, supported by friends of Arnold O. Beckman, will pay a stipend of \$5,000. It allows a selected intern to spend the summer working in the office of a politician or a government agency and to see from the inside the process of government. The applicant is expected to make arrangements with the appropriate political persons or organizations. The internship is open to any Caltech undergraduate who intends to be a student next year.

If interested, submit a proposal describing where and how you would use the stipend along with one faculty recommendation, to the Deans' Office, 210-87, or email machang@caltech.edu, by MONDAY, MARCH 28, 2005

Caltech Idol Contest/Spring Fling Luau

The Tech Express is holding their second annual Caltech Idol Contest and Spring Fling/Luau! The extravaganza will be held on March 9th, 2005. The Caltech Idol contest will be held from noon-1:30 pm, and the Spring Fling with food and festivities will be from from 11 am to 3 pm, outside of the Tech Express. The contest is open to all undergrads, but the entire campus is invited to come watch and help themselves to the free food and great prizes. Last year's winner will be participating again this year, and the Hawaiian Club Hula girls will also perform.

Caltech Public Events:
Coming Soon ...

Ologundé
Sat, Feb 12, 8pm
\$22, 18, 14

Continued on Page 6, Column 1

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Continued from Page 5, Column 5

California Quartet
Sun, Feb 13, 3:30pm
free

Soylent Green
film + discussion
Tue, Feb 15, 8pm, free

Measure for Measure
Feb 18 - Mar 5

For more information on events see <http://events.caltech.edu>

February Events at the Caltech Women's Center

Women's Health and Wellness:
The Body Beautiful
Thursday, February 17
12 noon
Women's Center, 265 Center
for Student Services

Diane Gudermuth, an Integrative Body Therapist, will help participants evaluate their body image and she will share techniques on how to have a loving attitude toward our bodies. RSVP required! To sign-up please call ext. 3221 or email: wcenter@studaff.caltech.edu

Caltech Ballroom Dance Club

Our hustle class is continuing for the rest of the term due to popular demand... no partner is required but some previous knowledge of hustle is helpful. Dance professional Gary Ulaner will be instructing. Class will be held Monday evenings in Winnett Lounge from 8 - 9:30 on 2/7, 2/14, 2/28, and 3/7. The cost is \$6/class or \$20/series for Caltech students and \$8/class, \$28/series for non-students.

Scholarships

USA Funds Access to Education Scholarships are available now to students with demonstrated financial need. USA Funds will award up to \$3 million dollars in renewable scholarships. Scholarships range from \$750 to \$1500 per academic year based on enrollment. Please visit their website for requirements and application forms: www.usafunds.org. The deadline to apply is March 15, 2005.

The American Society of Naval Engineers (ASNE) sponsors a scholarship program to encourage college students to enter the field of naval engineering. Currently one year scholarship awards are \$2,500 for undergraduate students, and \$3,500 for graduate students. Applications and further instructions are available at: www.navalengineers.org/Programs/Scholarships/sc_info.htm. The deadline to apply is February 15, 2005.

The College Women's Club of Pasadena scholarship applications are now available. This scholarship is available to female students who are U.S. Citizens and will be completing their sophomore year or higher, with a minimum GPA of 3.0. Applications are available in the Caltech Financial Aid Office. The deadline to submit all materials to the Caltech Financial Aid Office is: February 15, 2005.

The Swedish Club of Los Angeles offers two \$2,000 Scholarships: "The Glenn T. Seaborg" scholarship in Science, and the "Walter G. Danielson" scholarship in International Rela-

tions and Diplomacy. Requirements include: transcript, letters of recommendation from two professors, resume, statement of goals, and a demonstrated interest in Scandinavia. Juniors, seniors, and graduate students are eligible. Application information is available in the Financial Aid Office.

The 2005 Olive W. Garvey Fellowships are now available. This fellowship, available to both graduate and undergraduate students, is awarded based on the best essay on the topic: "The great aim of the struggle for liberty has been equality before the law." The deadline is May 1, 2005. For further information visit: <http://www.independent.org/students/garvey>

American Public Power Association "APPA" has DEED Student Research Grants and Internships available. Each year up to ten, \$4,000 student research grants and internships are awarded to students conducting research on an energy-related project. Students in energy-related disciplines are eligible. Students must obtain a DEED member sponsor for their student research grant or internship. Applications are accepted January 15 and July 15 each year. For more information visit: <http://www.appanet.org/res>

Citizens for Global Solutions is holding a FLASH Movie Contest "Global Solutions for a New Year." The top prize is \$1,000. Please visit: <http://advocacy.globalsolutions.org>

The Minerals, Metals & Materials Society "TMS" offers a variety of scholarships. To preview scholarship eligibility and deadline information visit: www.tms.org/Students/Awards/Programs/Scholarships.html

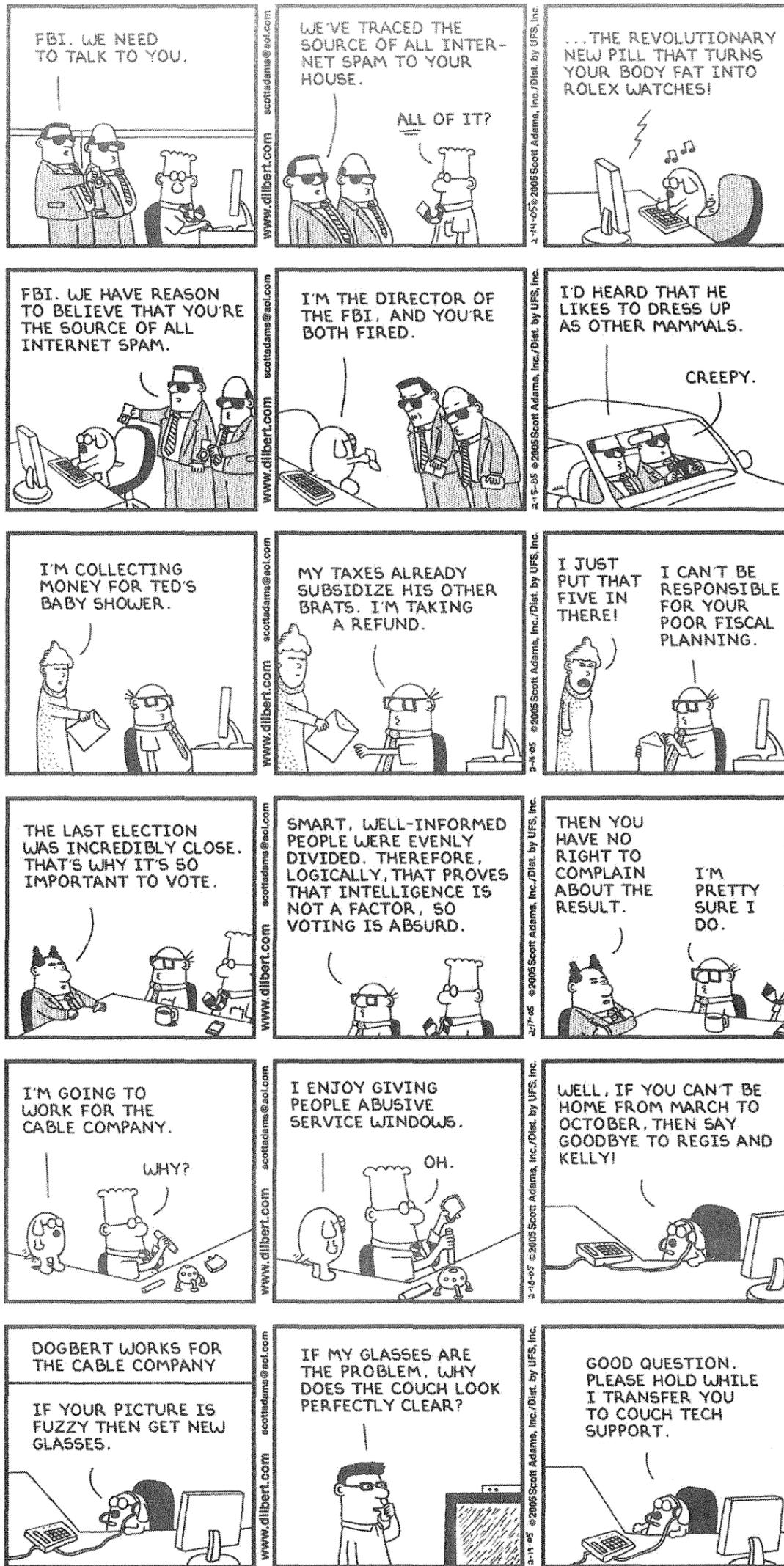
The Society of Plastics Engineers offers 10-12 undergraduate scholarships. Please visit their website for deadlines, scholarship guidelines and applications: www.4spe.org

The Excellence in 3D Animation Award is a \$1,000 cash gift awarded quarterly by Troy Studios to encourage students to pursue Graphics Arts and Animation. Award winners are chosen based on their entries in a contest. The contest is open to all students of all nations, regardless of field of study. To enter the contest, students should download free software from the www.animoids.com website.

Please visit their website for more detailed information. There are four quarterly deadlines each year (Feb 28, May 31, Aug 31, and Nov 30)

Educaid is offering their "DoubleTake" Sweepstakes. Win two \$2,500 scholarships - One for you and one for your school. Applications are available in the Financial Aid Office, or on Educaid's website: <https://www.educaid.com/doubletake>

If you are a college student who is interested in becoming a naval officer when you graduate, you could apply for the **Baccalaureate Degree Completion Program (BDCCP)**. This program pays future naval officers a monthly salary while they are still attending college. Qualified technical majors can receive a salary of approximately \$1,500 per month for up to 3 years



prior to graduation and qualified non-technical majors can receive this salary for up to 2 years prior to graduation. Additional information is available at: www.navy.com.

The National Council of Jewish Women/Los Angeles provides a variety of scholarships year-round for women, regardless of religious belief or ethnic background, who reside in Los Angeles County. The organiza-

tion focuses on each applicant's dedication to her chosen path and her financial need. Applications are available in the Financial Aid Office. For more information visit: www.ncjwla.org/.

The Air Force Reserve Officer Training Corps (AF-ROTC) offers 2 year to 3.5 year scholarships in all majors. The scholarships are generally capped at \$15,000 per academic year towards tuition and fees,

with an annual book allowance of \$480 and \$200/month stipend during the school year. Full-time student status, AFROTC program involvement, and a minimum of 2.5 cumulative GPA is required to be eligible. For more information visit www.afrotc.com

More Scholarships are available at www.finaid.caltech.edu/news.html

Scientists Build DNA Computer for Fractals

By ROBERT TINDOL

PASADENA, Calif.--In a demonstration that holds promise for future advances in nanotechnology, California Institute of Technology computer scientists have succeeded in building a DNA crystal that computes as it grows. As the computation proceeds, it creates a triangular fractal pattern in the DNA crystal.

This is the first time that a computation has been embedded in the growth of any crystal, and the first time that computation has been used to create a complex microscopic pattern. And, the researchers say, it is one step in the dream of nanoscientists to master construction techniques at the molecular level.

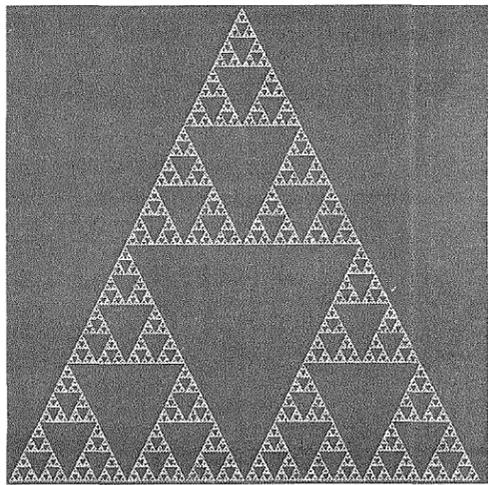
Reporting in the December issue of the journal *Public Library of Science (PLoS) Biology*, Caltech assistant professor Erik Winfree and his colleagues show that DNA "tiles" can be programmed to assemble themselves into a crystal

digits.

The result is a Sierpinski triangle built out of 0s and 1s. To embed this algorithm in crystal growth, the scientists represented written rows of binary "0s" and "1s" as rows of DNA tiles in the crystal--some tiles stood for 0, and others for 1. To emulate addition, the sticky ends were designed to ensure that whenever a free tile stuck to tiles already in the crystal, it represented the sum of the tiles it was sticking to.

The process was not without error, however. Sometimes DNA tiles stuck in the wrong place, computing the wrong sum, and destroying the pattern. The largest perfect Sierpinski triangle that grew contained only about 200 DNA tiles. But it is the first time any such thing has been done and the researchers believe they can reduce errors in the future.

In fact the work is the first experimental demonstration of a



Courtesy of ma.iup.edu

Professor Erik Winfree's group created DNA crystals that look like a Sierpinski Triangle.

bearing a pattern of progressively smaller "triangles within triangles," known as a Sierpinski triangle. This fractal pattern is more complex than patterns found in

natural crystals because it never repeats. Natural crystals, by contrast, all bear repeating patterns like those commonly found in the tiling of a bathroom floor. And, because each DNA tile is a tiny knot of DNA with just 150 base pairs (an entire human genome has some 3 billion), the resulting Sierpinski triangles are microscopic. The Winfree team reports growing micron-size DNA crystals (about a hundredth the width of a human hair) that contain numerous Sierpinski triangles.

A key feature of the Caltech team's approach is that the DNA tiles assemble into a crystal spontaneously. Comprising a knot of four DNA strands, each DNA tile has four loose ends known as "sticky ends." These sticky ends are what binds one DNA tile to another. A sticky end with a particular DNA sequence can be thought of as a special type of glue, one that only binds to a sticky end with a complementary DNA sequence, a special "anti-glue". For their experiments, the authors just mixed the DNA tiles into salt water and let the sticky ends do the work, self-assembling the tiles into a Sierpinski triangle. In nanotechnology this "hands off" approach to manufacturing is a desirable property, and a common theme.

The novel aspect of the research is the translation of an algorithm--the basic method underlying a computer program--into the process of crystal growth. A well-known algorithm for drawing a Sierpinski triangle starts with a sequence of 0s and 1s. It redraws the sequence over and over again, filling up successive rows on a piece of paper, each time performing binary addition on adjacent

Winfree's coauthor and Caltech research fellow Paul W. K. Rothmund, has inspired an entirely new research field, "algorithmic self-assembly," in which scientists study the implications of embedding computation into crystal growth.

"A growing group of researchers has proposed a series of ever more complicated computations and patterns for these crystals, but until now it was unclear that even the most basic of computations and patterns could be achieved experimentally," Rothmund says.

Whether larger, more complicated computations and patterns can be created depends on whether Winfree's team can reduce the errors. Whether the crystals will be useful in nanotechnology may depend on whether the patterns can be turned into electronic devices and circuits, a possibility being explored at other universities including Duke and Purdue.

Nanotechnology applications aside, the authors contend that the most important implication of their work may be a better understanding of how computation shapes the physical world around us. "If algorithmic concepts can be successfully adapted to the molecular context," the authors write, "the algorithm would join energy and entropy as essential concepts for understanding how physical processes create order."

Winfree is an assistant professor of computation and neural systems and computer science; Rothmund is a senior research fellow in computer science and computation and neural systems. The third author is Nick Papadakis, a former staff member in computer science.

Oringer Creates Endowment To Support Graduate Student Work

By MARK WHEELER

PASADENA, Calif. - "It's habit-forming," says Howard Oringer of his long rapport with faculty and students at the California Institute of Technology. Which is why the 1963 Caltech graduate has established the Oringer Fellowship Fund in Information Science and Technology, a \$600,000 endowment to generate support for Caltech graduate students.

The reason, Oringer says, is the people he meets in his visits to the Caltech campus. "My visits to campus to meet with graduate students and faculty have deepened my commitment to Caltech, and to the research model the Institute has uniquely developed," he says. "I marvel at the quality of the students, their ability to communicate their ideas, and the diversity of backgrounds and interests."

Recipients of the fellowships will be selected in the area of a recently launched initiative by Caltech called Information Science and Technology (IST), with a preference for students in mathematics of information. It is the first integrated research and teaching activity in the country that investigates information from all angles: from the fundamental theoretical underpinnings of information, to the science and

engineering of novel information substrates, biological circuits, and complex social systems. This is the IST's first graduate fellowship.

Oringer earned his master's degree in electrical engineering at Caltech before embarking on his career in telecommunications. He has over 30 years of operating and management experience in the industry, with an emphasis on the planning and implementation of major communications networks. It was a mutual interest in communications and networking that led him to the research of Michelle Effros, an associate professor of electrical engineering at Caltech, the director of the Institute's data compression laboratory, and an IST member.

"After meeting with Michelle," says Oringer, "I realized the personal impact she could make in an area I had spent my career involved in. So I decided to make permanent the funding that I had supported her lab with each year since 1996."

Effros's research looks for ways to increase the speed of data transmission across the Internet by compressing it. She and her colleagues use computer algorithms that look for redundancies within disparate data and eliminate them, thus reducing the number of information bits being sent.

Once the data reaches the receiving end, it is "reassembled" by other algorithms. The traditional way of doing this, says Effros, is through the use of coding developed for one user transmitting to one receiver. Her work, though, involves developing source coding for multiple user networks. So she and her graduate students are developing theory and algorithms for compressing data from one source or multiple sources, whether it's being sent to one receiver or multiple receivers.

"Howard's support over the years," says Effros, "has been enormously valuable to both me and my students. It really makes an incredible difference." Oringer visits twice a year to share his knowledge and experience and to hear about current research going on in the lab. "Over time, Howard has become an integral part of the group. We all really look forward to his visits. He brings to the table a wealth of knowledge and experience and shares that openly with the students. It's a wonderful opportunity for them and for me."

Regarding his ongoing relationship with Caltech, Oringer says: "I would recommend that other alumni take the time to connect with an area of their choice, and develop a rapport with the faculty and students. It may indeed become habit-forming!"

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World Events Shape Comics of the Time

Continued from Page 1, Column 3

By doing this, comics risk "flirting with pretension", but are making their way into respectable literary culture. On the other hand, comics and other forms of art remain different: "If you look at a painting and you don't understand it, you think you're stupid. If you read a comic and you don't understand it, you think the comic is stupid," Spiegelman said, evoking laughter in the audience.

Because comics often depend on simplification and stereotypes, they can have harmful effects as propaganda, but can also be used for peace. Here, Spiegelman related his own experience with the first cover he drew for the *New Yorker*. Created shortly after race riots between the Jewish and African-American communities, the cover art shows a Jewish man kissing a black woman, representing his "dream of peace". While the immediate result, according to Spiegelman, was that both communities "got really angry at me," the picture demonstrated a comic's ability to generate controversy and discussion, and also highlighted the personal conflict between his "underground artist sensibility" and the respectability of the *New Yorker*.

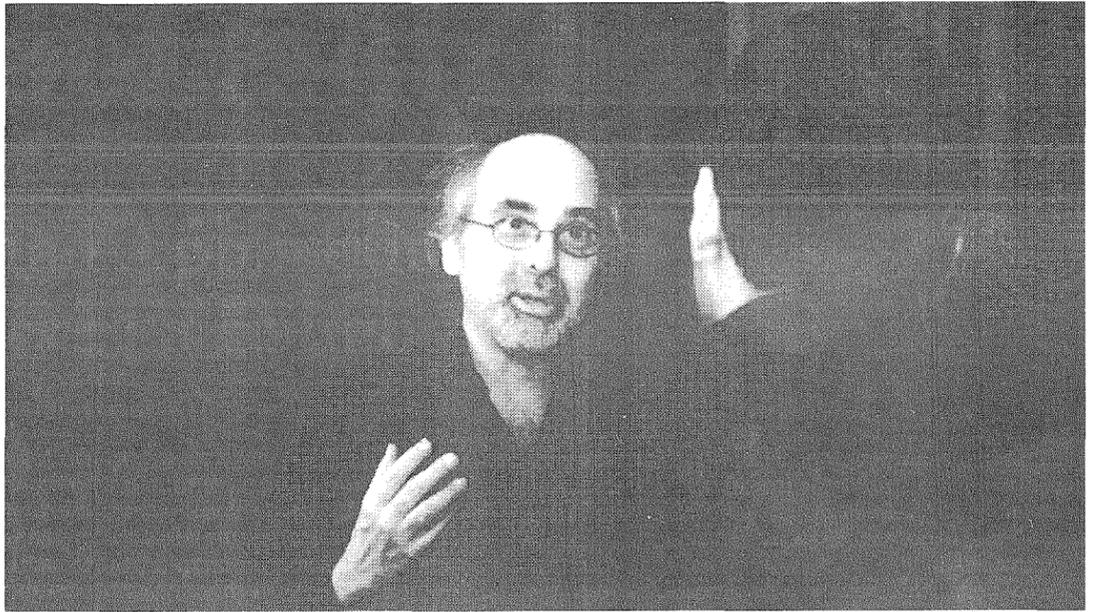
More recently, the September 11 attacks profoundly affected Spiegelman and his work. Recalling the World Trade Center towers collapsing behind him, he described his feelings of shock and confusion in the days that followed, as he "kept turning around to see if [the towers] were still not there." Asked to create a *New Yorker* cover in response, he made a black-on-black

page showing the silhouettes of the towers. "I was convinced after 9/11 that the sky was falling," Spiegelman said, and as a result produced pictures showing his anxiety, including one depicting a nuclear explosion over Fourth of July fireworks. Eventually, he gathered many of his post-9/11 pages of work into *In the Shadow of No Towers*, an "ongoing diary" of uncertain times.

In spite of his reluctance to draw political cartoons, the Bush administrations' war on terror, which Spiegelman called a "hijacking of the hijacking," drew his criticism in these pages as well. The book was a "picture of the collapsing structures of the world around me," he said.

Moving on to a history of comics, Spiegelman explained that these narrative drawings may have had their origins in picture windows. Later, the first graphic novel appeared in the 1830s, consisted of a story interlaced with pictures. While the pictures and words have little meaning without each other, together they are able to compose a novel, he said. The comic as we know it originated on "Newspaper Row", where Pulitzer and Hearst's use of color printing presses led to the creation of Sunday comics.

The "bastard children of art", comics such as "The Yellow Kid" or "The Katzenjammer Kids" often dealt with the lowly, vaudeville, or everyday life. The personal nature of these comics often led Spiegelman to "channel" them; for instance, using the Katzenjammer characters in a political cartoon. Another comic of bygone days,



A. Green/The California Tech

Pulitzer Prize Winning comic artist Art Spiegelman speaks with an audience member after his talk. Spiegelman addressed the changing styles of comics in recent years.

"Krazy Kat", is a personal favorite of his. The strip's offbeat portrayal of the dynamics between a cat, mouse, and dog lends itself to evocatively "endless permutations," Spiegelman said.

After World War II, the nature of comics changed dramatically, according to Spiegelman. Comic strips no longer had room for elaborate structures or "to be continued" storylines, and so four-panel comics were born. This, Spiegelman said, was the time of the "last generation of great comics", among which was Charles Schultz's "Peanuts". As time went on, comic strips gave rise of comic books, many of which centered on superheroic figures with a "very primitive energy." Later, the satirical postmodern comic publication "Mad" showed that its cynicism could survive the age of television; it offered the disturbing message that "the media is lying to you, and we are part of the media," Spiegelman said.

As the restrictions of the Comics Code tightened on the world of comics, the medium found a resurgence in underground comics. Here, artists could "break all taboos" and choose to express themselves in confessional or autobiographical pieces. A new generation of cartoonists reached readers through avant-garde comic publications, such as *Arcade* and *Raw* magazines. It was the success of underground comics that gave Spiegelman the chance to draw *Maus*, he recalled. On one hand, his only goal in his work was to "make

a large comic book that needed a bookmark"; on the other hand, he also wanted to improve the world.

Half-seriously, Spiegelman lamented not using the past 30 years to fight for world peace, because his quest for comics' respectability had succeeded so spectacularly. "While the world around me turned to total s---t, comics are doing better than ever," he said. Now, as the world continues on its uncertain path, it "leaves me sitting among the monuments of one century, fearfully looking toward another," Spiegelman concluded.

Bullying Causes Wide Variety of Afflictions

Continued from Page 1, Column 2

girls, causing hurt feelings. This passive form of aggression could originate from the societal restraints placed upon girls. Either girls are nice, smiling, and liked by everybody, or they are labeled "mean." There is no space for the middle ground of an assertive, confident female who stands up for herself. Thus, fearful of being named "mean," girls often turn to the more subtle and hidden form of bullying.

Situations such as these are familiar to most girls. However, they do not always end happily as the previous example did. In the case of Victoria, another girl shown in the video, societal rules lead to her exclusion from the group. "Welcome everywhere, she seems to belong nowhere," the narrator said.

While appearing carefree, pretty, and smart, Victoria was under a lot of pressure. Because of social problems both at home and at school, she started to fall apart both emotionally and academically. She lost trust in everybody, saying that she had to do everything herself. The only person she felt she could open up to was her therapist. In her case, the social bullying between girls lead to deep emotional repercussions.

In the case of another girl followed by the video, she resorted

to suicide because of the social pressures she felt at school. Even though she had a good relationship with her mother, and her parents were very involved in her life, they did not know that their daughter was undergoing such a traumatic time. One night, her mother found her daughter in the bathroom, unable to stop throwing up after consuming an entire bottle of Tylenol. Though not physically harmful, the mind games played by girls can cause deep distress.

However, while most girls do resort to mind games, not all do. In 1997, a girl was murdered by what is believed to be a group which included only one boy. More and more girls have become physically violent, which may be a by product of greater societal acceptance of this view of females.

The film was directed by Patricia Ivins Specht. Lee Schneider served as executive producer. Dr. Nicki Crick, the first researcher to study the relational aggression between girls, and Rachel Simmons, the author of "Odd Girl Out: The Secret Culture of Aggression in Girls," a *New York Times* best-seller, both provided commentary for the documentary. The film was released in 2003.



D. Korta/The California Tech

A group of dancers wave after finishing their performance during a celebration on Saturday of the Chinese New Year, sponsored by The Caltech C.

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Ariane Rocket Success: The European Space Agency successfully puts a bigger, stronger rocket into orbit.



Today is Valentines' Day: A day to let your special someone know you care. Unfortunately, you'll probably spend it alone, since this is Caltech.



Gunman attacks NY Mall: Shooter successfully injures one person before running out of ammunition and getting wrestled to the ground by mall employees.

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