



## Alice got nixed early in race

BY SARAH MARZEN

The Caltech students watching the DARPA Grand Challenge in Victorville this weekend didn't get to play cheerleader for Alice, their autonomous vehicle, like they did two years ago—last Tuesday, the Caltech Team was nixed from the 2007 qualifying line-up, largely based on Alice's the poor merging capabilities. This weekend's prizes, totaling \$3.5 million, went to Carnegie Mellon, Stanford, and Virginia Tech for best handling urban driving conditions, like stopping at red lights and avoiding collisions.

Caltech Team members were generally surprised at their failure to advance, although they understood DARPA's decision.

"Going into the qualifying event, I was pretty confident we would qualify for the race," said mechanical engineering professor Richard Murray, who supervises the Caltech team. "It turned out that the combination of Alice's size and our approach to the software made one of the tests... particularly difficult."

Alice was the second-largest vehicle on the road, and the merging capabilities for Alice had only been designed and tested 2-3 weeks before the actual race.

"We just didn't anticipate the emphasis on the interaction with other cars," said Caltech graduate student Noel duToit, coordinator of Alice's navigation team.

Teams are not informed of the specific tests before the race, and so there is some "guesswork" associated with preparing for the race. Alice might have advanced had the tests rewarded perseverance over merging capability, according to duToit. Both deToit and Nok Wongpiromsong, coordinator of Alice's system team, say that the best thing about Alice is "her ability to keep on going no matter what," citing her zero-accident rate.

The DARPA Grand Challenge, started in 2003, challenges teams from around the country to design an autonomous vehicle that can travel more than 60 miles safely with traffic. The best vehicles "must meet the same standards required to pass the California DMV road test" while travelling at a speed of at least 10 mph.

This year, a total of 11 teams advanced to the finals, including teams fielded by MIT, Carnegie Mellon University, Cornell, and Stanford.

## GOING GREEN



*The Sustainability Council is an ad hoc organization established by Dean Currie, the Vice President for Business and Finance. The intention was to bring together representatives from various groups on campus to discuss current activities and needs relevant to a sustainable campus.*

*Dr. Carol Carmichael, member of Sustainability Council*

**SEE PAGE 8  
TO FIND OUT HOW  
CALTECH IS TURNING  
ECO-FRIENDLY**

## HOW CALTECH IS GETTING SERIOUS ABOUT SUSTAINABILITY

## Guatemala wheelchair idea coasts into PBS competition

### Caltech alumni one of four finalists

BY JONATHAN YEUNG

Last year in a product design course, Professor Ken Pickar challenged then Caltech students Rudy Roy and Ben Sexton to create a project that would improve the lives of Guatemalans. When they came up with the idea to create wheelchairs out of bikes, little did they know that the class assignment would turn into a non-profit organization and a finalist in an entrepreneurial contest.

The student group is one of four finalists in the PBS Project Enterprise Contest, singled out of over one hundred applicants. The winner, which will be announced in the next few days, will be featured on one of PBS' NOW broadcast segments.

As Roy and Sexton searched for ideas for their project last fall, they came across disturbing statistics.

More than twenty million people in developing countries were disabled and had no wheelchairs. Without mobility, these people had limited access to health care, food and water, and in most cases they were unable to find jobs.

Thus, the two envisioned using parts from relatively cheap bikes to create wheelchairs as alternatives to the costlier, standard wheelchair.

Not only would these vehicles be more accessible to Guatemalans by price and availability, but the bike wheels on the chairs would be able to handle the rougher terrains prevalent in

Guatemala that traditional wheelchairs could not.

Even after the course finished, Roy and Sexton pursued their idea further. Seniors Nathan Chan, Tom Oliver, and Charlie Piatt joined the effort and together they formed Intelligent Mobility International (IMI), a non-profit organization devoted to, in the words of their website, "empower disabled people and their communities around the world."

"Working for a start-up company was more work than any of us had imagined," said Chan, whose primary roles are wheelchair design, marketing research, and product testing. "Even though we are starting on a small scale, there

Please see **WHEELCHAIRS**, Page 5

## Running out of party time

BY ANDREA DUBIN

With twelve days left for undergraduates to build Interhouse, students are concerned about finishing in time.

"We're really cramped with our schedule," said junior Nathaniel Borneman of Blacker House. Sophomore Sarah Li of Blacker house added, "It's a horrible date and bad scheduling." Last year, the house-wide party was held in late January.

"I didn't want it to be on November 17th," said junior Ekta Bhojwani, the ASCIT Social Director, "but it has to be taken apart by Christmas break so that was the only reasonable date."

Like last year's party, the South Houses are paired with a North

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### Olive Harvest in colors

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### Losing everything to San Diego fires

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From the Editor

A media board gives the *Tech* final say

Last week I argued that the Tech should be an independent body governed by a Publication Board that deals with all on-campus media. After someone approached me warning that students didn't want the newspaper to be controlled by the administration, I realized I must have completely failed to convey the purpose of the board, because my intention was the opposite of this. I want this paper to be as independent as possible, which means self-governance.

Here's Take II on how the Tech should be operated.

The Publications or Media Board at most schools is comprised almost exclusively of students. They represent the campus newspaper, yearbook, radio station, etc. At Caltech, the only relevant publications might be the Tech, the little T, and the Big T. Most boards have a faculty adviser, usually an expert on constitutional law and the first amendment, and maybe one member of the administration. They don't necessarily have votes, or if they do, they don't even come close to outweighing those of the students. They are only on the board to offer guidance and suggestions. If the students running the campus newspaper decide to print a month's worth of porn in it, the only thing the administration could do is suggest reasons why

that might be a poor decision.

The Board elects the editors, managing editors, and people for other leadership positions in campus media. They divvy up funding. They also field complaints against the publications, especially if there are legal issues with libel.

This is not handing the Tech over to the administration. This is far from it.

What this does is make the Tech more independent—independent of the student government, administration, groups on campus, etc.

In the past two weeks, I limited my argument against ASCIT governance to the problems of elections. But the problem of a student government ruling the newspaper is more fundamental. At its core, journalism is supposed to be separate from governing bodies, or else it's just a waste of paper (or bandwidth).

What's the point of having a watchdog if it gets spoon-fed? The New York Times would be pointless if it were under the control of the US government. Similarly, a college newspaper is severely crippled if it can't act independently of other campus organizations.

The Tech gets a constant stream of requests—sev-

eral every week—to print "articles" that are actually plugs for student groups, ASCIT only one of them. Maybe the old Tech didn't care if they ran the articles, or they were so desperate to fill space that they couldn't say no, but blurring the distinction between advertisement and actual news does the reader a huge disservice. We no longer need to do this, so we've been turning such submissions away week after week.

But people in charge of campus organizations assume—and with justification, since the Tech has no leverage—that the Tech is obligated to be an ASCIT publication first, and a newspaper second. They argue that since the Tech is a service to the students, there's no reason for us not to publish their advertisements under the guise of news stories, as we've always done before.

We need to be able to break from the old perception of the Tech as a weekly ASCIT circular, low on student interest and desperate for content to fill out eight pages. If a newspaper is what the campus wants—and I hope that's what it wants—then the Tech has no business being held on a leash.

Marissa Cevallos  
Editor-in-Chief

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VOLUME CIX, NUMBER 6

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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@caltech.edu](mailto:tech@caltech.edu) as plain-text attachments, including the author's name, by Friday of the week before publication. The Tech does 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 5 PM 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@caltech.edu](mailto:business@caltech.edu). For subscription information, please send mail to "Subscriptions."

Letters to the Editor

• • • • •

Why did I have to pay for your olive oil meal this weekend?

MICHAEL FORTE

This last Friday's "first annual" olive harvest proceeded without a hitch. But what does it and other such large events that substitute for our CDS dinners accomplish? I am always a fan of getting undergrads out and socializing with their peers and faculty, but why do we have to pay disproportionately for such events compared to the rest of the people in attendance?

On-campus undergrads pay \$1389 for board each term. We get \$420 for declining balance which leaves \$969 for open kitchen and dinner. That comes out to about \$17.50 per day. CDS seems to claim that we pay \$5.50 per day for open kitchen (which is absurd based on the number of people who don't use it), leaving \$12-\$13 per dinner.

So on-campus undergrads and people in Avery paid \$12 for the olive harvest dinner. But the other people in attendance, who seemed to be a majority, did not pay a penny. It is not entirely clear to me how this event was funded, but it received some money from both MHF and Housner. Both of these funds are for undergraduates and graduates, not for faculty or the random people who decided to come to the olive harvest. I am sure both funds would be unhappy to hear that undergrads had to pay for the event but the guests did not.

It seems to me that if anyone else should have eaten at this event, they should have paid the same amount that I did. The funding that this event received should not have also covered the people for whom the funding was not meant for. Also if it costs less than \$12 dollars per person, I would be furious that I helped subsidize someone else's dinner without my choice.

Michael Forte is a senior and the Interim Treasurer for ASCIT.

Join the Tech every Monday and Friday at Broad Cafe from 12-1 PM.

President's Column

Get involved at Caltech: invite a professor to lunch at the Ath

Before I start this column, I would like to thank everyone involved in Friday's Olive Harvest. The coming together of such a large festival from such a simple idea is simply extraordinary, and the fact that it came together so quickly shows how amazing the results can be when we get together and plan something. Most of all, though, the harvest was an opportunity for great interaction between students, faculty, staff, and alumni.

It was really fun climbing a ladder outside of Baxter and picking olives with an assortment of Techers, everyone from the president's wife to the groundskeepers, but opportunities for meeting and forging relationships with the various parts of Tech shouldn't be confined to a single day a year.

The easiest way to get to know the Tech faculty is to take a professor out to lunch. The MOSH provides money through ASCIT for groups of students to have lunch with a professor. Although students normally decide to take the professor to the Athenaeum, this money could provide for a lunch date at any restaurant in the area. Best of all, there are no forms to fill out or proposals to write; simply get a handful of students together, convince a faculty member that he or she wants to eat with you, and come to an ASCIT meeting. Most of the time, you will get the money with almost no questions asked. Surprisingly, though, nobody has taken us up on this offer yet this term. The

faculty want to meet undergraduates, the undergraduates want to meet faculty, and ASCIT and the MOSH want to make it happen. If nothing else, it's a free lunch.

House events provide another opportunity for interactions. Faculty and administration are always welcome guests at dress dinners, but there is also funding for specific social events to foster the ties between students, professors, and alumni. The MOSH provides funds for events fostering student-faculty interaction. This normally takes the form of a barbecue or tea, but can be as creative an event as one can imagine, as long as it attracts faculty members. The alumni association helps schedule house reunions on a rotating schedule; Ricketts had theirs last term and it was a great time for all. In addition, the Alumni Association is always willing to help students organize events, whether the students need assistance in funding, organization, or just getting the word out to alumni.

One of ASCIT's major goals for this year is to strengthen interaction between the undergraduates and other groups on campus. Caltech's small size gives us a unique opportunity for the various parts of campus to get to know each other, and I would recommend everyone take advantage of the programs we have for this.

-Chris Gonzales, ASCIT President



# Newt Gingrich speaks at Pasadena Civic Auditorium:

*Student Views on Smaller Government*

## Smaller, more efficient

BY CHRIS KENNELLY

Speaking at the Pasadena Civic Auditorium October 15th, Newt Gingrich, former Speaker of the US House of Representatives, described the challenges he foresaw in the future. By moderate estimates, he argued, technological advancement will accelerate and expand four to seven times in the next 25 years. The shift pales in comparison to what humanity has ever borne witness to in the past: It represents the leap forward from a “pre-light bulb, pre-telephone, pre-computer, pre-iPod” era to today. These bounds towards progress cannot be fully realized without proper and efficient management. Gingrich reminded listeners that we are currently facing a revolution of unheard-of proportions. Our outlook toward the next generation from today is at best comparable to that of Caltech’s founders looking at the world we live in—a world of DNA, space ships, and computers. A more striking estimate draws the comparison back to Isaac Newton looking forward to the digital age.

Gingrich argued government cannot lead the efficient management of our nation’s or our world’s advancement. Although the ideal government should act as any business would, Gingrich noted, “in the public sector, there’s no level you can go to to fail.” The government will not fall into bankruptcy as a typical business would; it has a guaranteed clientele and essentially unlimited ability to produce funds. Comparing private and public enterprise, he marveled that while FedEx and UPS can jointly move and track millions of packages daily, the LA School District cannot accurately pay its teachers. Within the realm of private enterprise, the market rewards those providing high quality service and justly punishes those who fail in their responsibilities. Within government,

reward and consequence are rare and unspoken of. Due to the inherent inefficiency of bureaucracy, Gingrich claims, even the simplest metrics of government success -- “Levees should hold...bridges should stay up...wars should be won” -- cannot be met.

These desires, he asserts, are considered too radical by the news media and within the government. Bureaucracy is entrenched. With the growth of technology, these attitudes cannot be allowed to persist. The continued strength of American society and its self-government is derived from the ability to continue to lead, not a willingness to cling to the status quo. To see another sixty years of American leadership on the world stage, economically, diplomatically, and militarily, the United States will have to spur science and technological education domestically, by better K-12 education and by attracting foreign intellect. To fail simply requires allowing gross deficiencies to persist.

The crux of Gingrich’s argument is the simplicity of its logic. No reasonable expectation of government improvement can survive without some degree of motivation. Gingrich describes his ideal world as one wherein “if the government can’t help you...they get out of your way.” They either “don’t go in, or win.” At present, politicians continually propose new government solutions but frequently leave implementations to existing bureaucracies. This behavior transforms the worst ideas into pitiful wastes of resources and the best ones into bitter shells of lost opportunity. As Caltech students, we are at the forefront of the technological revolution, molding the world by our minds. And whether we personally are political or apolitical, the choices made within government and private enterprises affect the fulfillment or stifling of our ideas.

the simplicity of its logic. No reasonable expectation of government improvement can survive without some degree of motivation. Gingrich describes his ideal world as one wherein “if the government can’t help you...they get out of your way.” They either “don’t go in, or win.” At present, politicians continually propose new government solutions but frequently leave implementations to existing bureaucracies. This behavior transforms the worst ideas into pitiful wastes of resources and the best ones into bitter shells of lost opportunity. As Caltech students, we are at the forefront of the technological revolution, molding the world by our minds. And whether we personally are political or apolitical, the choices made within government and private enterprises affect the fulfillment or stifling of our ideas.

# Privatization unreliable

BY VALERIE SYVERSON

Newt Gingrich, although he has not held public office since his unfortunate loss of power for the Republican Party in 1998 amid the Clinton perjury trial, has remained active in national politics; he is a fellow of two prominent conservative think tanks, regularly appears as a guest on Fox News, and occasionally even makes enough noise to get himself briefly back onto more reputable news channels. In addition, he recently withdrew his offer to run for president in 2008 on the basis that he would not then legally be able to continue as chairman of the 527 group American Solutions, an organization dedicated to minimizing government. His recent speech at the Pasadena Civic Auditorium, came on the heels of this announcement.

Those familiar with Gingrich’s work in Congress and since, then, will find the content of this speech no surprise. Gingrich appears to have concentrated on the importance of shrinking the reach and power of public institutions during the next twenty to twenty-five years, such that they may be better equipped to meet the ever-expanding challenges the future will bring.

There is no question that the next century will bring tremendous changes for the human quality of life, as both technological development and population continue to accelerate. In order for humanity to keep control of the reins as all these changes bear down on us, it is certainly necessary for us to form some consensus on how things should be managed.

However, the purpose for which businesses -- private enterprises -- are designed is to maximize their own profit, whether to the benefit or the detriment of the outside world. This certainly bears significant similarity to the historical behavior of governments during the colonial period, but arguably is not the model on which most modern people would like to see the world governed.

Prominent anti-tax Republican Grover Norquist said, years ago, “My goal is to cut government in half in 25 years, to get it down to the size where we can drown it in the bathtub.” After Hurricane Katrina, this once commonly-cited phrase stopped

showing up so often in editorials from small-government advocates, perhaps due to its having taken on slightly too sinister a cast. Levees and bridges, as is obvious to the most casual observer, will be built and kept up when the resources are provided for them to do so. The detriment to the government of Minnesota when the recent bridge collapse in the Twin Cities occurred is blatantly obvious enough that it is difficult to see Gingrich’s claim that governments see no reward or consequence as anything but intellectual dishonesty.

In fact, in the aftermath of the event, commentators in Minnesota pointed out that the governor for the last six years has vetoed every increase in gas taxes that would have gone toward road repair, and in fact passed tax cuts that mandated budget decreases even though engineers rated the bridge as “structurally deficient” by 2005. Other notable losers in the Minnesota budget standoffs include public schools, mentally ill people dependent on federal health programs, and those who buy state park passes. These tax cuts, naturally, went primarily toward relieving the financial burden on the wealthy.

This space does not allow that I discuss the disastrous levee breaks in New Orleans resulting from the similar lack of funding to repair them before a serious storm, though in that case the tax cuts were at the federal level. Nor can I address the laughable notion that too much government involvement is the cause of the U.S.’s failure to stabilize Iraq, or question the ability of private enterprise to provide good K-12 education -- or, for that matter, health care -- to those who cannot afford to pay for it. However, the above account of the bridge collapse in Minneapolis demonstrates what, unfortunately, seems to be the usual story.

It might be pleasant to think that letting wealthy businessmen build and repair public bridges of their own accord would take care of all the inefficiencies of government, but the record speaks against it. Instead, we see that things for those without vast personal resources only get done when public money is gathered -- or extracted -- and used to fund projects and programs for the public good.

# What we can learn from other schools

*Not for changing who we are, but for learning how to do it better: Craig fields grad students’ responses regarding their undergrad experiences*

BY CRAIG MONTUORI

Last week, I wrote again about the 1967 student trip to colleges on the East Coast. This will be my third and final piece on it and the similar trip that I proposed to the MHF for the following year.

Regarding my previous articles, I’ve gotten some email responses from grad students about their experiences as undergrads along with some suggestions on which options available at other schools could be emulated here. I have one major concern in response to one of these emails: limited resources.

Caltech, like any other institution, has a limited financial pool. In some respects, it’s a zero-sum game, in that a dollar spent on the Humanities is a dollar that can’t be spent on the sciences. In other respects, Caltech separates its goals

in raising money, such that a dollar that’s raised for the Humanities doesn’t necessarily compete with a dollar that’s raised for the hard sciences.

Extracurricular activities fit into this framework as well, which means that Caltech is unlikely to put much effort into developing a music program comparable to those at high-quality liberal arts schools like Williams. It’s a basic fact following from Caltech’s core decisions to be the best in a few fields.

As a result, any trip today will not recommend that Caltech abandons what makes us unique or second reports on education that recommends we ‘improve and strengthen the HSS division.’ Instead, it will look for ways to improve Caltech within the framework of the choices we’ve already made.

For example, let’s look at the RAs and the Master of Student Houses (MOSH). In the current system, the RAs are a mix between older friend and parent, in that they are both someone to consult with when problems arise and front-line disciplinarian when rules are broken. The MOSH, formerly a disciplinarian position similar to the Deans, is now a cultural position, with the task of expanding the horizons of the students.

Now, at Harvard and Yale, things are somewhat different. At Harvard, each house, with a size similar to that of all of the South Houses combined, has a Master. The Master is a faculty position that combines the MOSH and RA positions. The Master arranges for speakers for the House and organizes Tutors within the Houses, who provide advice for everything

from grad school applications to House drama. The position of Master seems to be a combination of disciplinarian, point of contact for faculty-student relations, academic mentor, and someone who represents the culmination of the academic process that we struggle through.

What can we learn from the reasoning behind the position to improve Caltech? Well, ever since the position of Director of Residence Life was created, the MOSH has been an increasingly ill-defined position. We need someone like Professor Brennen, who toured the Houses each night and saw the problems students faced. We don’t need to lose trips to the LA Philharmonic, but we need the help of faculty to prevent us from drawing back into the Houses.

We can think about what we ask of our RAs, who are demanded to

simultaneously be both friends and police. We can think about how to work faculty-student interactions and mutual respect into our current institutions, which should be encouraging it instead of promoting a system where such interactions and respect are considered unusual. We can think about the roles of the Houses in terms of academic and social development.

The trip will look at these questions and not demand sweeping changes for the sake of laying out another set of recommendations. Instead, it will help explain why Caltech is the way it is to those of us that are only here for four (or five...) years. We don’t have the ability to spend twenty years thinking deeply on these questions, but the record of this trip, like the trip in 1967, could trickle down to influence Caltech decades from now.



# Faces of Caltech

## Amy Eastwood, track star

BY PERRIN CONSIDINE

Name: Amy Eastwood  
Position: 6th year Graduate student, 2nd year Ricketts House R.A.  
Hails from: University of Virginia, Chem department  
Goal: Well, I guess my main goal is to get my Ph.D. so I am a bi-organic chemist so I want to... get some good research done and learn... I think I want to work with undergraduates, later, so another one of my goals is to relate and interact with undergraduates as a mentor and a tutor.

Perrin Considine: Why did you choose Caltech?  
Amy: I applied to the best Chemistry departments in the country and visited the ones I got into... and I was very excited about a couple of the labs at Caltech.. And a lot of it was the way I felt when I came here. It felt right.

PC: What do you like to do for fun and to relax?  
Amy: Between being a grad student and an RA, I don't really have much down time. What little free time I do have, I try to spend with my friends or outside, probably running.

PC: What is the best part of your job as a student or as an R.A.?  
Amy: The people. As a grad student, I enjoy all of the interactions I have with my boss, Dennis Dougherty. And with my

labmates. There's always some sort of interesting and thought-provoking conversation to be had in lab, whether it be about someone's project, current events, or a hypothetical zombie takeover. Not to mention all of the other people in the Chemistry department who work behind the scenes. As an RA, I'm surrounded by amazing undergrads. I enjoy coming home to people hanging out in the lounge, courtyard, and hallways. I also get to interact with the Deans, the people in Student Life, Housing, Maintenance, the janitorial staff, and so many others. I can find a friendly face almost anywhere on campus.

PC: Is it true that you ran 3 consecutive marathons on the same day? If not, please tell us about your running exploits, which little birds say include the Boston Marathon.  
AMY: Hahaha! No, I've only run two marathons, and definitely not consecutively. I ran in college for the University of Virginia, and then continued running out here. I started by running the San Diego marathon with Team in Training, a fundraising organization for the Leukemia and Lymphoma Society. My next marathon was the Boston Marathon--which was a lot of fun. Team in Train-



ing connected me up with Nike's Club Run LA, and I have fun running with them during the year when they put on events. Other than that, most of my racing has been with Team Run With Us, a team associated with the running store of the same name up on Lake. With them I've competed in many cross country, track, and road races. Right now I'm a little too busy to train very much, but I still try to get up and run most mornings.

## ASCIT minutes: 10/31/07

Present: Chris Gonzales, Mike Grinolds, Andrea Dubin, Mike Forte, Mike Woods, Ekta Bhojwani, Partick Herring, Daryl Coleman

Absent: Dan Lo, Zack Higbee, Caleb Ng, Angela Zah

\*Tech  
-Mike Woods brought up the possibility of letting the Tech be autonomous. He suggested that we could publish our stuff (like candidate statements) through ug-list. Gonzo argued that we would be removing them from ASCIT and putting them under Caltech control. He brought up the concern about censorship. Having a Publications Board would take control away from the students and instead the Tech would be under direct control of faculty and administration. The alumni association sold off 2 publications to Caltech and they are having a lot of trouble since they don't have their own publication. The bylaws say that we have to fund them 10% of our budget anyway. Gonzo says that the Tech is independent. Our goal should be giving students more control, and giving the Tech to administration would not be accomplishing this. In terms of elections, we think that people should be informed enough to select the best editor. Mike Grinolds brought up that this is also the way BoC chair is decided, and people tend to make good decisions about that position.

\*SAC

-Gonzo reports that the renovations will be complete fairly soon. The screening room looks nice.  
-There is one room that hasn't been assigned. It used to be the silkscreen room. It's not being renovated right now and is just designated as multipurpose room. The Alumni fund wants it for the student phone program, since IST building is being built behind Steele. The BoD feels that it would be a waste to put it there since not that many undergrads would use it. We feel that it is not directly beneficial to a large number of students and we could find a better use for the room.

\*Interhouse  
-Ekta requests that we give the houses checks for them to start building with. She suggests giving the houses \$1k per party to help them start building. Housing will reimburse houses for costs, but they need money so that people don't have to front it out of their own pockets. We will give the houses the money set aside for interhouse from ASCIT's budget.

\*Budget items  
-Currently we are out of budgeted club funding. Other funding for clubs has to come out of "special reserves".  
-Weird things happened with the tech since they hadn't actually gotten their money until this year. It shouldn't actually affect this year's budget

Andrea Dubin  
ASCIT Secretary

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# Student group one of four in PBS finals

WHEELCHAIRS, FROM PAGE 1

are many things we must do in order for this to take off—product design and testing, production, and distribution.” Furthermore, the team has set an ambitious deadline to have the first wheelchairs on the ground by February of next year. Despite these challenges, Chan remarked that he was “confident” that they could complete the task.

He has reason to believe that the February deadline will be met as IMI has already progressed quite far since its founding. The company has developed a product design that only needs refinements in ergonomics. For production, the team has talked to a company in Guatemala called Transitions. Not only is this company inter-

ested in producing these wheelchairs, but it is providing further benefit by hiring disabled workers to make these wheelchairs, as finding employment for the disabled is one of the original goals of IMI. IMI is also negotiating with Corsario Bikes for wheelchair parts. To fund this, IMI has received grants from the National Collegiate Inventors and Innovators Alliance, and is currently applying for the JP Morgan Good Venture grant.

“We all are interested in international sustainable development,” said Chan. “People in the United States have so much, whereas people elsewhere have so little. We’re very fortunate, and I know it sounds cliché, but it is our duty to help them.”

# Some people not psyched for party

PARTY, FROM PAGE 1

House or Avery to work on construction. Lloyd and Fleming are working on a “Top Gun” themed party, Page and Ricketts are building Dante’s Inferno, Dabney and Ruddock are doing Oktoberfest, and Avery and Blacker are working on the theme “Riding out the storm” based on a 1930s sea-side resort that gets hit by a storm.

Blacker is planning on having a 12-piece live band and lots of water. “Think Keylargo,” said Borneman. “We are going to have a larger flood than ever in our courtyard and have waterfalls.”

Senior Ashok Kumar of Dabney House said that the plan is to have a Beer fountain for Oktoberfest. Daryl Coleman of Fleming house said that they are building an aircraft carrier for their party.

ASCIT as well as individual houses are trying hard to get people out helping to build the parties. Borneman said, “We’ll be giving out free food to workers.” In addition, CDS and ASCIT are organizing events for people who are building. “So if you are out building, you’ll reap the benefits later,” Bhojwani commented.

After this year, Interhouse is slated to be a biennial event. “We’ll evaluate how it went after

this party,” Bhojwani said. “It might be reinstated as yearly, but we need more input.”

Some students are tired of building two parties a year and aren’t happy that Interhouse is happening again. “I know a group of people who are not all that excited about doing another party this year,” Kumar said. Senior Nathan Lau commented, “I’m not terribly happy about the fact that interhouse is happening this year. I feel like it’s the administration’s ploy of getting more money using the undergraduates. It’s going to ride a fine line of being really good or really terrible.”

This year the plan is to have an even bigger party than last year. Each house has \$5,000 for construction as well as another \$4,000 for food, drinks, and other things such as music. Graduate students will be invited again, and the plan is to allow even more guests this year.

Bob Perpall, class of 1952, says he’s excited that the party is happening again after it was banned after 1989. “It was a lot of fun!” recalls Perpall, “and we were always building right up until the last minute. Some things never change.”

# Olive Harvest a well-oiled event

Curious students made their own olive press, grab media light

BY PRADEEP RAMESH

Some saw it as a much needed stress-relief before the onslaught on midterms, others welcomed the break from CDS; whatever their motives, Techers, along with other members of the community, celebrated the much anticipated First Annual Harvest Festival last Friday.

By Friday morning, all the machines for processing the olives were ready. Slowly but surely and with the help of several student groups and many volunteers, each of the 130 olive trees on campus were harvested.

By 5 PM, the Olive Walk and the lawns adjacent to the Athenaeum were covered with dinner tables laden with varieties of Mediterranean cuisine. Within 15 minutes, alumni, faculty, students, and guests had filled the seats and the festival kicked off with the spirit and energy of a Greek gala.

But where did the idea originate? “Dvin Adalian and I were sick and tired of doing our homework one day and we wondered if we could make olive oil,” explained Ricky Jones, president of Ruddock House. Plagued by curiosity, the two consulted several other students who had successfully experimented with processing olives for oil the previous

year. Then they set to work designing a machine that could pulp the olives and churn out safe, edible oil.

Relying on PVC pipes, tarps, and other construction tools, Jones and Adalian finished a machine that could press the olives into a pulp. “Our harvest was sporadic because neither of us had much time, but we managed

on the festival. Work on building the olive presses began in early March and the presses were delivered to campus last Wednesday. The emphasis, according to Jones, was not profits but “uniting the student body under a common banner.”

“I don’t know of many other events which garner as much publicity as the olive-harvest

as Caltech’s name has become much more ubiquitous,” said Ricky. As regards marketing and sale of the oil, Ricky said, “Students are in position to claim that the olives are theirs — the olive trees and the olives are a unique characteristic of

the campus. I do not believe that the spirit of the festival is to make a profit; rather, it is another quality that distinguishes Tech from other schools.”

Since Caltech is not a member of the California Olive Growers Association, rigorous lab testing was required to ensure that the quality of the olive oil was on par with California standards. Additionally, the “task of organizing volunteers and coordinating work shifts was difficult and messy,” added Jones, “but we managed to get everything and everyone working together.”

to harvest about 25 pounds over a week,” said Jones.

So what was their reward? “About 500 milliliters of home-grown olive oil,” laughed Jones. “It wasn’t much, but we had a lot of fun and got a lot of attention. The administration became really interested and we even got on the news,” said Jones. When asked about the festival’s goals, Jones said, “The festival brings together different segments of the Caltech community and we as students have a duty to uphold and add to the Institute.”

This year, the administration spent approximately \$100,000

## By the numbers

2000 chairs at the Harvest dinner

131 olive trees on campus

100,000 dollars spent



Write or take pictures when you can.

We’re flexible.

Join us Monday or Friday for lunch at Broad Cafe, or send [tech@caltech.edu](mailto:tech@caltech.edu) an email if you’re interested in being a part of the Tech.



Like to write?  
Like to take pictures?  
Like free food?

Join the Tech every Monday and Friday at Broad Cafe from 12-1 PM.



# Olive Harvest



Workers and community-  
members picking olives  
on the right.



At right: Ruddock president Ricky  
Jones making olive oil from scratch.



Plenty of healthy eating  
& cooking tips on display.



Layout by Michelle Jiang

What started out as  
just an idea, blossomed  
into a community-wide  
all-day event with food,  
healthy cooking  
tips and even  
a custom-made ice sculpture.





# Festival 2007



Photos courtesy of Michelle Jiang & Jon Tsai



Even Tom Mannion joins in on the fun as the master chef for the festival



Students help out and also kick back and enjoy the food.



Food, food and more food!



Amidst all this great food, Jean-Lou Chameau stops to take a photo with two of our student chefs on call





# Aboveground & Underground...

GREEN TO THE CORE

BY ANNA HISZPANSKI

Caltech's faculty has for many years been researching renewable energy resources. However, recently Caltech as a whole has taken a greater interest in becoming greener and more environmentally friendly. Earlier this year, the Sustainability Council was created for this purpose.

As Dr. Carol Carmichael, First Lady of Caltech and a member of the Council, explains, "the Sustainability Council is an ad hoc organization established by Dean Currie, the Vice President for Business and Finance. The intention was to bring together representatives from various groups on campus to discuss current activities and needs relevant to a sustainable campus."

The council includes most department heads—such as those of architecture and planning, housing, and utilities—and some undergraduate and graduate student representatives.

The Tech recently sat down with several members of the Sustainability Council to learn about the Council's efforts and what kinds of "green changes" have been happening in some of the departments across campus.

## Caltech Dining Services (CDS)

According to Biodegradablestore.com which sells biodegradable products, 230,000 plastic supermarket bags are dumped into landfills every hour. Now, Caltech C-Store bags are no longer contributing to that statistic. Recent shoppers at the C-Store may have noticed that their purchased items were placed in BioBags instead of

the typical plastic bag. These bags are produced in part from corn, and compost fully within thirty to sixty days under the right conditions.

Cups and to-go containers have also been switched to greener products. As opposed to the wax-lined paper cups and Styrofoam to-go containers that were previously used, Caltech now uses corn plastic cups and containers composed of mostly natural fibers—both of which are completely compostable.

Among other changes implemented to make dining at Caltech a greener process, napkin holders were changed to one-at-a-time napkin dispensers. Xpressnap, the company that produces the dispensers, guarantees napkin consumption to decrease by at least 25%. Peter Daily, Senior Director of Caltech Dining Services (CDS) and a member of the Sustainability Council, said that while he hasn't measured the napkin consumption, it indeed seems lower.

However, changing to more environmentally friendly products has been a trial-and-error process according to Daily. The first biodegradable spoons that were purchased ended up melting in hot soup. Daily quickly remedied the problem: CDS has since switched to biodegradable soup bowls and cutlery produced by EarthSmart Products that can withstand up to 200°F.

However, while Daily is pleased that the to-go carrier items are more environmentally friendly, he believes that CDS would be even greener if diners used real plates, cups, and silverware more often.

"We're going to try to push people to use real silverware and plates," said Daily. "Our whole nation is into grab and run... We've always had to-go coffee mugs, but we just got a whole new supply in. We're trying to encourage people to use that."

Going green has not been easy, either. According to Daily, most of the major suppliers didn't stock green products initially.

"We kept pumping and peppering SYSCO for greener products. They started doing some research a n d

found a broker, and we did the picking and choosing of the product," said Daily. "Over the course of the last spring and summer, we finally got the supply chaining going. There are still some speed bumps—some products are not being produced in the amounts we need—but it's getting better."

In addition to the difficulty of finding environmentally friendly products in the quantities Caltech needs, Daily has also had difficulty finding them at reasonable prices.

"All of these green products are more expensive," said Daily. "We've offset part of the cost by getting away from [Caltech] logo cups and logo pizza boxes."

While the process has not been easy, Daily says he has enjoyed the challenge of thinking outside the box.

"We've had fun with the whole project and have made it a challenge to our staff to try to do things as efficiently as possible," said Daily.



This natural gas turbine maxes at 10 megawatts. Exhaust gases of 1000 °F are then used to generate an additional 2.5 megawatts.

## Housing Going Green

While Housing's green changes may not be as visible to everyone in the Caltech Community as those taking place in Chandler, Tim Chang, Director of Housing and a member of the Sustainability Council, has been finding ways to making living at Caltech more environmentally friendly, as well.

As of September 2007, all Caltech Housing properties (with the exception of undergraduate houses) are using the 100% green power option that Pasadena Water and Power (PWP) provides. According to the Pasadena City website, by opting for the green power option, customers are charged an extra 2.5 cents per kilowatt-hour in exchange for having their energy come entirely from green sources (mainly wind power). While this option helps reduce Caltech's carbon footprint, it also help increase investment into renewable energy sources.

According to Chang, "solar power is [also] being investigated for the Catalina buildings and other single family homes." To test out this option, Tom Mannion's Caltech home was recently outfitted by solar panels.

Three years ago Housing also replaced all its washing machines to front-loading models, which are more environmentally friendly.

"[The High Efficiency front loading models] reduce electricity and water consumption. [They] also requires less soap to clean a load resulting in cleaner waste water," wrote Chang in an email response. "As a side note: it also extends the life of the items being washed."

Housing has also been working to change various fixtures to lower consumption ones. For example, Chang cites the fact that Housing has replaced nearly 400 toilets to dual flush models that use less water and has replaced some light switches with motion detectors. The department has also pushed to change to compact fluorescent light bulbs where it is possible.

Within the student houses, Housing has added decals on mirrors above sinks and stickers on light switches reminding students to conserve water and electricity. Additionally, Housing recently purchased Smart Strips which will be provided to students' rooms as an alternative to normal power strips. The Smart Strips sense when a device is not being used and can turn it off, according to the manufacturer's website.

While encouraged by the changes being made, Chang believes that perhaps a more important component is conservation by people:

"We can do all the above, but without education for consumers, the conservation piece will not be effective. I read somewhere that the best way to effect positive change with respect to our carbon footprints is by reducing consumption," wrote Chang. "Technology will help but the largest effect can be made by eliminating waste."

## Facilities Management

Delmy Emerson, Director of Facilities Management, is also a member of the Sustainability Council and has found some innovative ways to contribute towards Caltech becoming greener. Because her department is responsible for maintaining the buildings and grounds, changes within her division are especially far reaching across the Caltech campus, affecting where our trash goes, what our floors are washed with, and the landscapes we see every day.

One way in which Emerson's department helps the entire campus be greener is through the Caltech Recycling Center they operate. The center, built on the north-west corner of campus in 1993, has grown from its humble beginnings when it was first operated by students. Now, Caltech is a certified recycler, and according to Emerson, the program has been so successful that other groups, like Pasadena City College, have modeled their own recycling efforts on Caltech's.

Emerson and her custodial staff have also recently looked at various cleaning products and procedures that result in less chemicals being released into the environment.

"We have initiated a green cleaning program where we've evaluated all of our cleaning procedures, supplies, and practices," said Emerson. "We have identified a number of green cleaning products and are in the process of replacing [chemicals we've used with these products]."

In terms of maintaining the campus grounds, Emerson's department has been working to make more of the vegetation on campus drought resilient, which will require

less water. However, they already have a system in place to try to minimize consumption for watering plants.

"Some people have the impression that we use a lot of water," said Emerson. "Back in the 90's we built a weather station on campus. We have sensors throughout campus and have the irrigation connected to a computer system. The sensors measure the water requirements of the plants and soil, and the system will automatically release water when the soil requires it."

Visitors who come to campus to enjoy the greenery, however, may be surprised to find that some of Caltech's typically perfectly manicured lawns are brown. Emerson says that this is done on purpose because grass normally goes dormant in the winter. In previous years, the groundskeepers would add chemicals and water the grass to keep it green year-round. However, in an effort to change their practices to be more environmentally friendly, the department is allowing nature to take its course.

"If the lawns are dormant we won't water them as much. It saves both in water and labor," said Emerson.

As a result of the green changes happening around campus, Emerson hopes that students' interest will be sparked and they'll be encouraged to become involved.

"We want to be able to use the student population to help us in our initiatives," said Emerson.

For more on sustainability at Tech, including how students are helping measure our progress, see our website at [tech.caltech.edu](http://tech.caltech.edu).

#1

Unplug electronic devices when not in use

#2

Use real silverware, glasses, and plates at Chandler

#3

Bring your own coffee mug to the Red Door

#4

Don't print papers you can reference electronically





# Losing

*Two sisters remember what it was like last time they saw San Diego on fire*

Top left: The Felsen home before the 1996 fire.  
Center: Rubble and ash are all that remains after the fire.

# Everything

BY MARISSA CEVALLOS

When Csilla Felsen stepped outside her Avery room two weeks ago to an orange, hazy sky, she smelled smoke and ash.

The last time the Caltech senior from San Diego smelled the odor, she was ten years old, and her house had just burned down.

For Csilla's sister, Caltech ju-



Csilla Felsen is a senior in Biology and English

nior Panna Felsen, the smell of smoke always reminds her of their mom instructing them to breathe through their wet swim towels as they drove up their familiar hill, not suspecting an empty ash-filled lot instead of a home.

The wildfires two weeks ago

were a scorching reminder to the Caltech sisters of losing everything they owned, from their prized Barbie collection to their mother's handmade quilts.

Though Felsen family came through this October's fires with little more than ash-covered windows, Csilla says she still remembers the moment her family drove up their familiar hill after swim practice, past rows of unharmed houses, to her charred, empty lot.

"We went hysterical," said Csilla, who thought her rabbit and dog Inca had died in the fire. Their 14 year-old sister Aniko started screaming at a group of spectators who'd gathered around the house, "Does this make you happy?!" They left "very quickly."

Their mother took the 3 sisters shelter-hopping for the rest of the night, eventually settling on the Burger King parking lot after shelters filled or closed. They hadn't seen their father since he left for work that morning.

"We figured he was OK," said Csilla, but it wasn't until their mother pulled into a shelter her husband was just leaving that the shocked family was reunited.

Csilla said her father's positive attitude calmed the girls down.

"The first things he said were 'Everything's going to be fine, don't worry about it,'" said Csilla. "Having strong parents really helps."

## A new life

In fact, for Csilla and Panna, the

weeks they spent hopping around hotels and eating in restaurants weren't traumatic at all.

"We were in vacationland," said Csilla. "We got to go shopping and eat vacation food. You'd be surprised how quickly you can get new stuff."

Csilla said her fifth grade class was incredibly supportive since they had just been at her house a few weeks before for her birthday party.

"They were devastated," said Csilla.

She and her sisters were interviewed by the news along with a teacher at her school who'd also lost her home.

Csilla credits the generosity of friends for the support and gift certificates that helped out during their nomadic period, but said that the generosity was almost overwhelming.

"For a while, people tried to write us checks. Everyone just felt badly," said Csilla.

The sisters left their friends from their old school when they switched to the school system near their new home.

"I would say that the fire is probably one of the best things that happened to our family," said Panna. "For one thing, we moved to a better school district with better opportunities."

The fire was more uprooting for their older sister, who'd had a stronger attachment to the old house and the old life.

"She used the experience as a college essay. For her, it was much more dramatic," said Csilla.

The fire changed their mother, whose intricate quilts and needlecraft decorated the house and had been featured in quilting magazines.

"She stopped doing it seri-

ously," said Csilla, after the fire wiped out an entire life's worth of needlework. "She'd still make us dresses from time to time, but it wasn't a hobby anymore."

## Location, Location, Location

The Felsen home sat on top of a canyon filled with fire-loving plant life. The canyon was full of chaparral, a type of plant community that thrives in arid conditions and burns quickly. Csilla did a report on the particular plant life soon after the fire.

"In San Diego, they actually tried protecting the plant," said Csilla. "It's ironic."

Csilla thinks that people don't understand how easily the California landscape catches on fire. "Fires can start when people are careless with a cigarette."

Even though their house sat atop a cinder box, Csilla says her family couldn't have imagined their house wouldn't have been there after driving past her neighbors' unharmed houses. "We had no idea it would be our house."

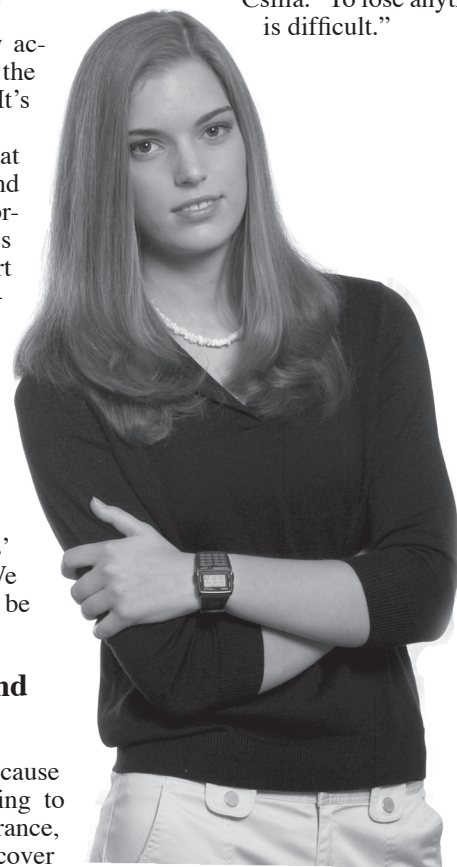
## Family, friends, and insurance

Csilla says that because her parents were willing to battle with their insurance, they were able to recover their financial losses. But it meant her mother had to spend weeks cataloguing every item in the house.

"She had to go room to room in her head, had to inventory everything. The insurance company gave us catalogues with pictures of furniture, with none of the prices listed, so we could pick out which ones we had."

Csilla said having good insurance made losing everything easier on her parents. But for the people whose houses only partially burn, she says it's a lot harder.

"Everything's a mess. And you don't get the same support as if you'd 'lost everything'," said Csilla. "To lose anything is difficult."



Panna Felsen is a junior in Electrical Engineering



# The end is near

## *Douglas Adams right about superiority of mice*

BY NATALYA KOSTANDOVA

Have no fear, Supermouse is here! With a recent Case Western Reserve University breakthrough in science, the small furry rodents are evolving into something unbelievably strong and powerful—they've engineered mice to run faster, eat voraciously, and live longer. Don't get me wrong—superheroes are awesome, but something is telling me that the Supermice will choose to join the Dark Side.

The superior mice, made possible by a genetic modification to a single gene that the mice share with humans, can run for six hours without stopping at a decently consistent rate of 20 meters per minute, which has been officially compared to Lance Armstrong riding up the Pyrenees without a break. They have a more active sexual life than normal mice, live and reproduce longer, and eat 60% more food without gaining weight.

And now, with the size of their colony reaching half a thousand species, the world as we know it may be coming to the end.

After all, the new characteristics of the mouse would be incredibly beneficial to the human race. Increased sexual drive and reproductive age? Yes!

Just what we want—a perfect solution to the problem of overpopulation and poverty that we've been struggling with for a little while. Increased food consumption? This seems to be the lucky day for the starving children of Africa.

Elevated aggression, recorded in the mice, is also something that we want. The world has been too peaceful and unexciting lately. As for genetically modifying humans to have ten times the physical ability of an average human, it will be great to have a world populated by mini-Schwarzeneggers.

If not used for the benefit of the humans, what were these mice made for? It's a conspiracy, I tell you. The scientists want the mice to take over the world. Seriously. Planting the seeds of mouse domination long ago, they have been waiting for the day when the rodents can finally rise above their exploiters and hold the reins of power.

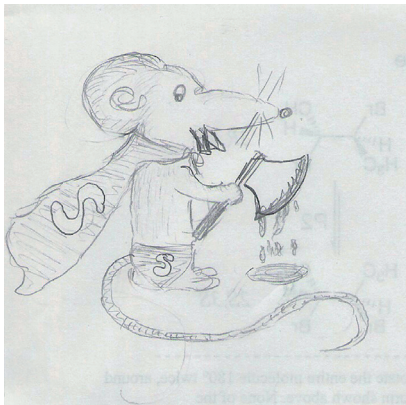
From Mickey Mouse, Pinky and the Brain, and Mighty Mouse (the original Supermouse!), to Ratatouille, which makes it acceptable for rodents to have control over food, the most sacred part of our lives, mice have become more and more accepted in our culture.

After all, for only \$10.95 you can buy your pet mouse Sleep-N-Slumber Bed, Peek-N-See Vanity, and Sip-N-Snack Lamp (courtesy of PETCO), which are made with the comfort of your mouse in mind.

And now, the day has come when the rodents are ready to be unleashed unto the world. I can already imagine the armies of Supermice marching

down the streets of Washington, D.C., Paris, Moscow, London, and Harare, Zimbabwe, their squeals blending in unison as they chant the name of the lead

character of Tom and Jerry, hailing him as the original



stick-it-to-the-man mouse.

Their anger, bottled up through centuries of mousetraps, lipstick testing, and mental damage caused by continuous association with a computer part, unite them in their ultimate revenge against the human kind.

Their saber-sharp teeth tear into the decomposing flesh of trampled humans, and they show no mercy.

When they come for us, there will be nothing left to do.

And the world will descend into darkness.

**"A deeply funny chronicle of male adolescence."**

—Entertainment Weekly

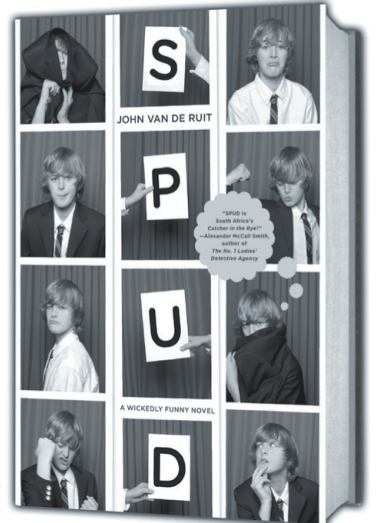
**South Africa's #1 fastest and bestselling book!**

**"Hilarious."**

—Best Life

**"South Africa's #1 fastest and bestselling book!"**

—Alexander McCall Smith, author of *The No. 1 Ladies Detective Agency*



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## The Siemens Competition in Math, Science and Technology is coming to Caltech!

The Siemens Competition takes great pleasure in inviting the students, faculty and staff of Caltech to the following events:

**Reception and Viewing of the Students' Research Projects:**  
(refreshments will be served)

**DATE:** Friday, November 9, 2007

**TIME:** 5:00 pm – 6:30 pm

**LOCATION:** Dabney Lounge

**Student Oral Presentations:**

**DATE:** Saturday, November 10, 2007

**TIME:** 9:00 am – 2:45 pm

**LOCATION:** Ramo Auditorium

We look forward to seeing you!

The Siemens Competition in Math, Science and Technology is the nation's premiere math and science research competition for high school students. The Siemens Foundation provides nearly \$2 million in college scholarships and awards each year for talented high school students in the United States. By supporting outstanding students today, and recognizing the teachers and schools that inspire their excellence, the Foundation helps nurture tomorrow's scientists and engineers.

[www.siemens-foundation.org](http://www.siemens-foundation.org)

**SIEMENS**



# Volleyball bids goodbye to seniors



Junior Marie Giron and freshman Sarah Griffis rise up for the block against the opposing Whittier hitter. The Beavers lost at Whittier in three games on Tuesday

BY YANG YANG

The Caltech women’s volleyball team ended SCIAC conference play with a home loss to Claremont-Mudd-Scripps on Thursday.

The Athenas (10-4) won in straight games 30-16, 30-21, 30-9.

Seniors Sarah Stidham, Karen Wang and Erin White were honored that night for their years of play.

The team won three matches this season, the highest win total since the 2004 season, when Stidham, Wang and White were just freshmen.

“I’ve been very happy this year,” Stidham said. “For the two years before this we didn’t win a single match and it’s been great to win again this year.”

Although Caltech were unable to win a SCIAC match this season – to the great disappointment of Stidham – several Beavers topped the SCIAC statistical categories.

Freshman Kathryn Peters finished second in service aces per game with an average of .56 while fellow freshman Ying-Ying Tran finished third in digs per game with a 5.12 average.

## Sports and Scores

**Women’s Volleyball**

10/30 at Whittier College L 3-0  
11/1 vs, Claremont-Mudd-Scripps L 3-0

**Men’s Soccer**

10/29 vs Pomona-Pitzer L 4-1  
10/30 vs La Sierra L 2-0  
11/2 vs Cal State East Bay L 4-1

**Men’s Water Polo**

10/29 vs Whittier L 17-7  
10/31 at Redlands L 19-6

## Upcoming Games

**Friday, 11/9**

All-Day - Men’s Water Polo @ SCIAC Tourney (Redlands)

**Saturday, 11/10**

All-Day - M/W Cross Country @ NCAA Regionals (OR)  
All-Day - Men’s Water Polo @ SCIAC Tourney (Redlands)

**Sunday, 11/11**

All-Day - Men’s Water Polo @ SCIAC Tourney (Redlands)

## Soccer loses last game to East Bay

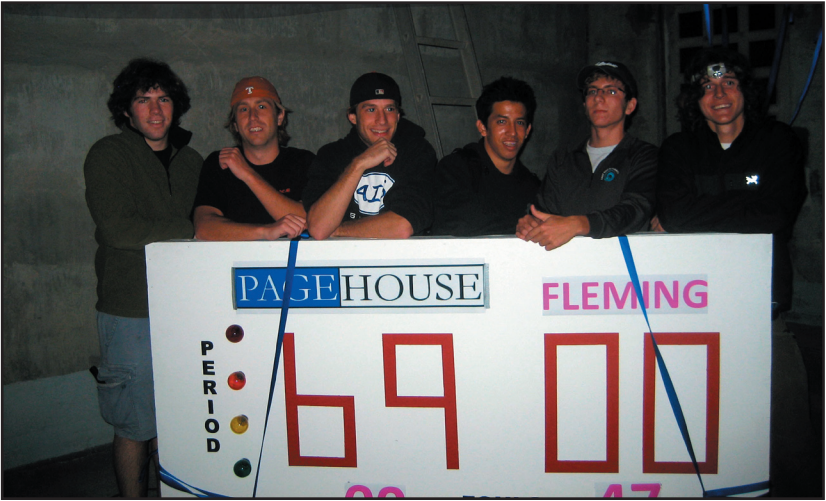


Freshman Jonathan Yueng goes after the ball against a La Sierra player during the men’s soccer team’s 2-0 loss on Tuesday.

The team ended its season on Friday with a loss to Cal State East Bay. However, Caltech did score its seventh goal of the season in the finale.

The Beavers finished eighth in SCIAC play with a record of 1-13, with the lone win coming at Whittier (2-11-1), where Caltech posted a 1-0 overtime victory.

## Scoreboard Shenanigans



Six Pageboys pose on top of Millikan with the Fleming scoreboard after several modifications were made.

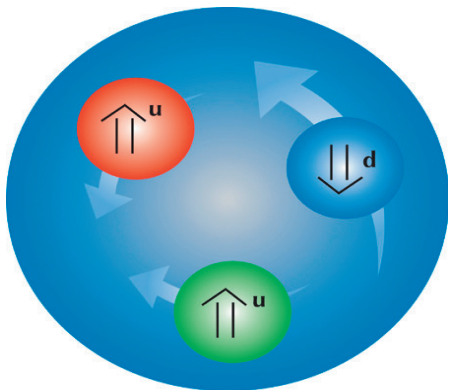
As part of the prank, the board was hung on the side of Millikan library.

Pictured (left to right): Tommy Heavey, Sean Mattingly, Chris Mischaikow, Erin Flanagan, Paul Fleiner and Mark McDuff



# Dr. Quark

## Proof by Induction that Science is better than you!



Dear [DRQUARK@GMAIL.COM], I've been having trouble getting along with my friend. We met during rotation, but now we live in different houses. Every time I see my friend on the olive walk he turns a cold shoulder and shies away. He has started making new friends with Statistical Physicists, and he never wants to work with me on my Bio sets. Should I become a Physics major? All the cool kids are. -LonelyFrosh15

The reason your former friend doesn't talk to you anymore is probably because you're not a very interesting person. You probably don't have any friends at all, really, and you probably smell like a dank cave full of cheddar cheese.

But the one good defining characteristic you have is that you are not a Statistical Physicist. Not only do they sleep with your wife, but they are also the reason why human existence is bound to be snuffed by heat death due to the ever increase of the amount of Entropy [for more information reference The Last Question, Asimov].

Ludwig Boltzmann was the bipolar, manic-depressive, poster child for messed up scientists. When he was a young child his father died and his mother married Joseph Stefan after an inordinately brief period of grief. The young Boltzmann was doomed to live out a childhood dominated by an abusive and alcoholic stepfather.

At the tender age of twelve

Stefan locked young Ludwig in a closet and refused to feed him until he derived a novel power law equating radiation of a black body to a power of it's temperature. Stefan, in a classic exhibit of "Type A" personality, published the work as his own. It was only years later that scholars deemed it appropriate to attribute young Ludwig by tacking on his name second in the Stefan-Boltzmann law.

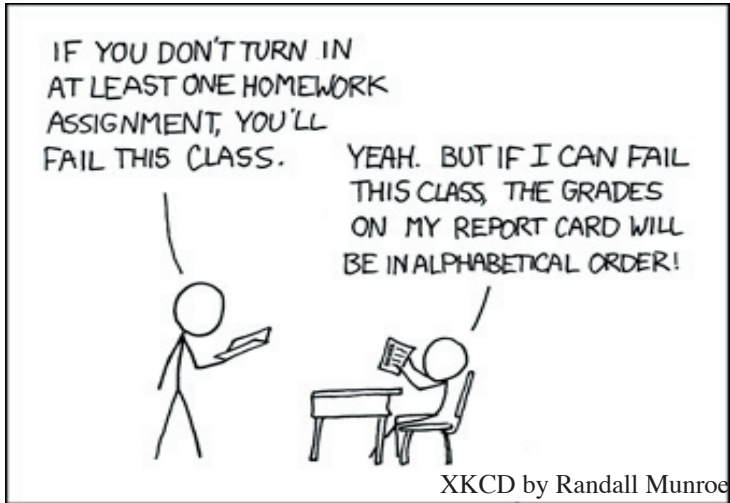
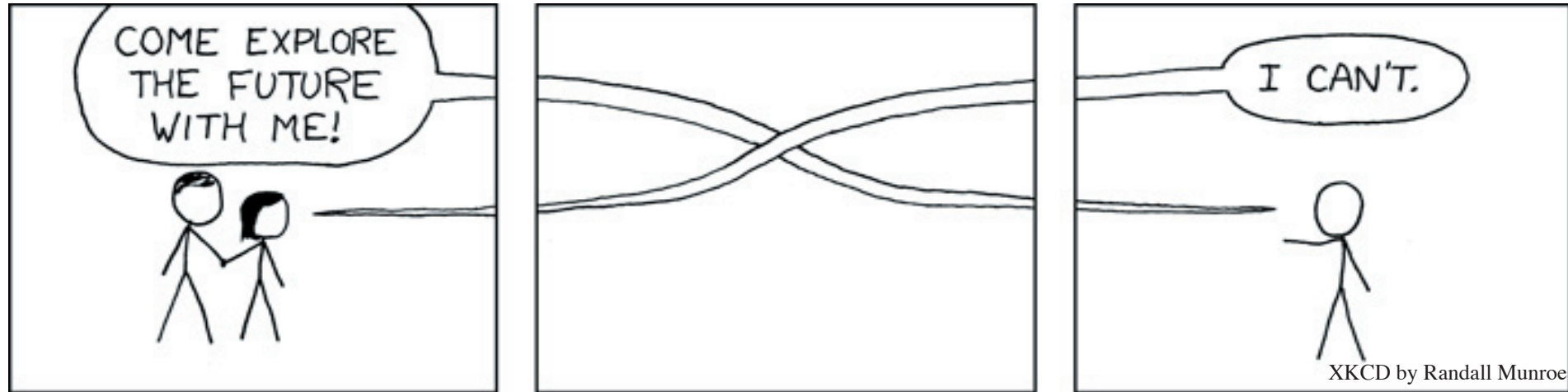
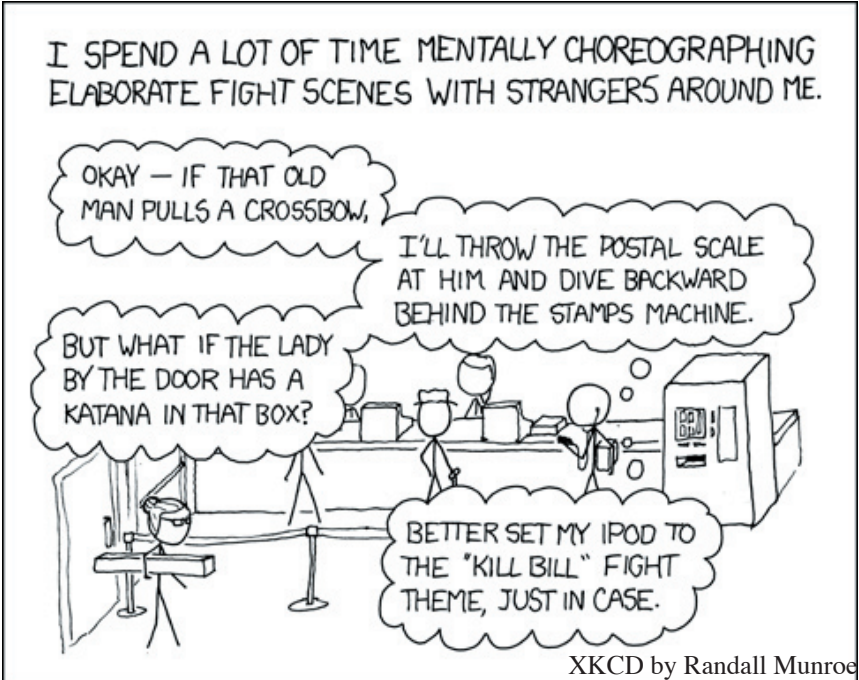
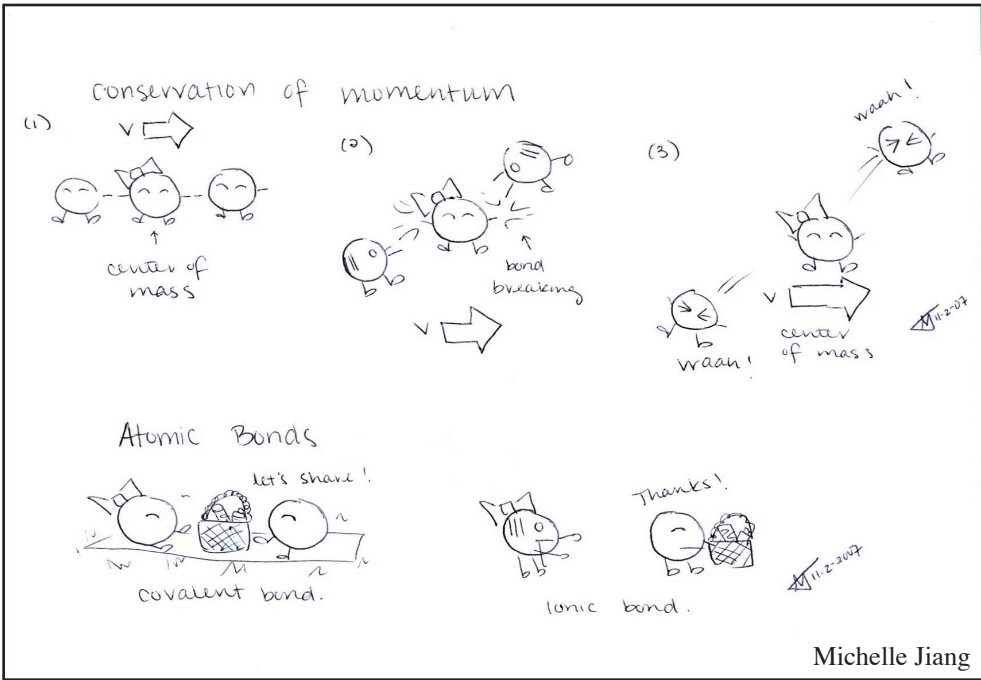
Boltzmann struggled all his life, and eventually committed suicide in a bout of severe depression. If there is a lesson for us to learn from this, it is that statistical mechanics kills. I heard of an incident where the Ergodic Principle got loose in central station last August and explored every possible state of twelve civilians before ul-

timately killing them (eventually a nonliving state was explored). Boltzmann's tombstone is marked with the law  $S = k \log W$ , which is ironic because in his time no one took it serious, and I'm not going to lie, not that many people take it seriously these days either.

My advice to you is to not follow in the footsteps of Ludwig Boltzmann, because even though he is a brilliant scientist, he is also dead, so in that respect you have at least one up on him. You'd probably want to stay away from statistical physics and thermodynamics in general. As an alternative I might suggest Atomic Physics. Atomic Physics is perfectly safe and never hurt anyone.

Dr. Quark has secretly been living two lives, one life as the mild mannered, yet brilliant combinatorial theoretical biologist Dr. Quark, and the other as none other than the intrepid Dirk Kempthorne, the brave and astonishing United States Secretary of the Interior. In his free time he balances his efforts between curing cancer and saving sequoias from mold overgrowth. He also enjoys rhubarb pie, oh he does. EMAIL YOUR QUESTIONS TO DR. QUARK@GMAIL.COM AND HE WILL ANSWER THEM IN A POLITICALLY CORRECT FASHION. UNLESS YOU'RE A POLACK.

# Comics



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