

THE CALIFORNIA TECH



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PASADENA, CALIFORNIA

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Two awarded \$25,000 to study abroad

Watson winner Isaac Garcia-Munoz will study guitars in Spain; Jean Sun to observe health care in Africa

BY MARISSA CEVALLOS

Two seniors will find themselves far away from graduate school next year.

Isaac Garcia-Munoz and Jean Sun will be traveling as far as Spain, Africa, and China as two of the fifty winners of the Watson Fellowship this year.

The Watson fellowship dishes out \$25,000 to graduating seniors to investigate an interest abroad for one year, during which they are not allowed to return to the United States.

Garcia-Munoz, an electrical engineering major, plans to study instrument-making in Spain and South America, while Sun, a biology major, will be volunteering in hospitals in Geneva, South Africa, Shanghai, and London to compare international healthcare distribution.

Both seniors were pleasantly surprised to hear they'd won the award last week.

"I woke up to a phone call from the Pasadena Star News," wrote Sun in an email. "I had gotten about 3 hours of sleep at that point, so I had absolutely no idea what they were talking about and

almost hung up on them."

Wrote Garcia-Munoz, "I was shocked. Shocked!"

But both agreed it wasn't a sky-high GPA or stellar extra-curricular activities that bagged the award.

"Remember Captain Planet? I used to think that the kid that had the power of heart was pretty worthless," said Garcia-Munoz. "But I now believe that having heart was one of the reasons I was chosen. The Watson invests in the person, not just their academic background."

Said Sun, "My feeling is that they just want you to convince them that you can carry out your project and get yourself out of a jam if things don't work out the way you expect them to."

Garcia-Munoz, who plays violin, guitar, bass, drums, and

banjo, plans to pack his bags for Spain, Argentina, and Chile to look at Spanish influences on South American instruments. His passion for music making started

as soon as he arrived at Caltech, when he was sure he'd be a mechanical engineer.

"Ever since I opened the Caltech catalog for the first time my freshman year and saw the class 'Projects in Music' I wanted to make electric instruments and model

acoustics," wrote Garcia-Munoz in an email.

"Now that I'm finishing in electrical engineering, the Watson was my chance to pursue some mechanical engineering interests."

After his year on the Watson, Garcia-Munoz will head back

PLEASE SEE WATSON, PAGE 7



Photo by Robert Karl

Isaac-Garcia Munoz, above, will study instrument-making in Argentina, Chile, and Spain over the next year on the Watson Fellowship.

Mike Brown wins Feynman teaching award

BY SARA MCBRIDE

Professor Mike Brown has heard that Richard Feynman's classes "were fabulous if you were anywhere as smart as he was. You'd get these fabulous insights that you would never get any other way." But the irony of the planetary astronomy professor winning the fourteenth annual Feynman teaching prize is that after ten years of teaching, Brown has learned the opposite.

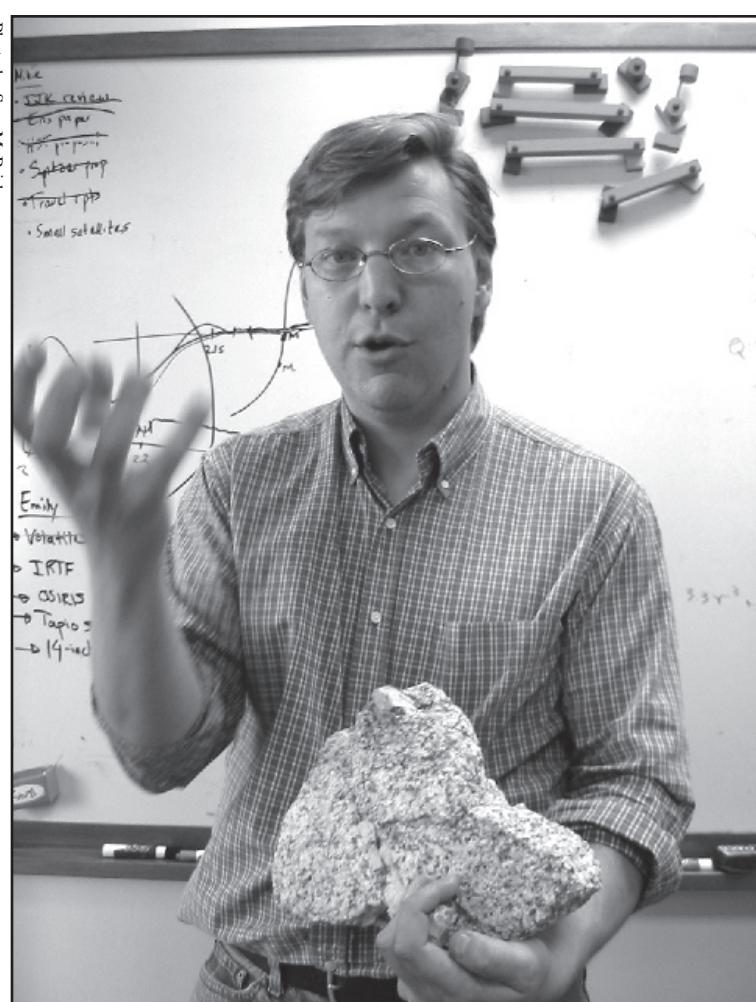
"Know what your audience knows...I'm actually a lot closer to my students' levels than Feynman was," said Brown. "I can remember not knowing this stuff. Recently not knowing this stuff, like 10 minutes before the class," Brown joked with a half serious expression on his face.

The Richard P. Feynman Prize Excellence in Teaching is given each year to a Caltech professor who demonstrates exceptional ability, creativity, and innovation in both laboratory and classroom instruction. As the 2007 recipient, Michael Brown will receive a \$3,500 cash award, plus an equivalent raise in annual salary.

Brown said it was "a little intimidating" to win the Feynman award.

Mike Brown, who claims to

"teach geology for physicists and physics for geologists" is actually an astronomer who doesn't teach any astronomy.



Professor Mike Brown, this year's Feynman teaching awardee, taught the introductory geology class last year.

"Now they all know I've just won this fancy teaching award and they expect me to be good. I think last time, they had no expectations."

Brown was singled out by the Feynman Prize Selection Committee based on student nominations and reviews. His freshman Geology 1 (Ge1) students have called him, "inspirational", "approachable", "down to earth" and "a great role model." A past student, Sierra Petersen, a sophomore in Geochemistry, said, "His class is my favorite class I've taken so far. It made me switch majors into the GPS department!" Another student, Marie Giron, a sophomore in GPS, said, "Mike teaches while showing us practical applications of everything. He presents scenarios from all over the planet and asks students to figure out the reasoning behind it. He then goes beyond and asks us hypothetical questions which builds on what we have learned.

He challenges us while still allowing us to solve problems, and this builds confidence which is rarely seen in other classes."

Mike Brown, who claims to "teach geology for physicists and physics for geologists" is actually an astronomer who doesn't teach any astronomy.

So how did a prominent astronomer, the man who discovered the "Tenth Planet" and campaigned to demote Pluto, become a geology professor?

"I begged to teach that class," said Brown, a Caltech professor of ten years. "They were a little reluctant because I didn't know any geology. But it's such an unusual class to teach at a place like Caltech. Most places, you have to apologize if you use even a slightly mathematical concept. But here, the math part is easy, the physics part is easy. Here you get to talk about the science of the geology, which is the fun stuff – it's a great class!"

Brown's popularity is perhaps due to his unusual assignments and class philosophy. Said Brown, "The students need a class where they can sit back and actually think about something, and not just do twenty hours of problem sets each week."

In fact, the first problem set sends students to do some geology field work of their own.

"My very first problem set is my favorite problem set of all; it's a two part problem set," said

PLEASE SEE BROWN, PAGE 7

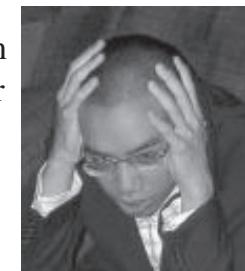
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From the Editor

Caltech: make prefrosh a priority

It's no secret that Caltech admissions needs to be more competitive. When a prospective student gets into Caltech and another good school, say, MIT/Harvard/Princeton/Stanford, they overwhelmingly choose to steer clear of the tiny Pasadena campus. While we can't force high school seniors to send matriculation cards to Caltech on May 1, we can give them a reason to consider us.

Fly everyone in.

Only several years ago, every woman and minority student was awarded a free round-trip plane ticket to prefrosh weekend. Now, only minorities are flown in.

We're moving in the wrong direction--to turn around, we need to first throw free plane tickets at every female accepted. This would not only increase the yield of female applicants, but create a more glom-free prefrosh environment. You know, like at a normal school.

And by including a free ticket in everyone's admission packet, you give the prefrosh one more reason to be excited about Caltech.

We should also be a bit more generous with "free

stuff"--free t-shirts, free water bottles, free frisbees, free anything they can take home and be excited about having.

In addition, we need to schedule in a huge party to happen around prefrosh weekend, whether it be an interhouse party or a multi-house party. But at the same time, we need alternatives to going to a party: there should be scheduled board games, table tennis, pool, etc. The beauty of having more prefrosh is that you can have more activities without thinning out the prefrosh population. And there's no reason the party would be "lame"--after all, if we get 100 more people to come to the party by the grace of free plane tickets, wouldn't that make a better party?

It's not lying to try to have an outrageously fun prefrosh weekend--anyone who gets into Caltech can figure out the prefrosh environment will be different from the day-to-day campus ambience. And if they're too daft to figure that out, they'll end up at MIT anyway.

*Marissa Cevallos
Editor-in-Chief*

Women should fight -- for their right to fight

BY: EVANS BONEY

I'm sure the feminist movement is happy with the last 60 years. As a feminist myself, I think women should have equal opportunities as men and that we've seen much progress on this front in recent decades. While some battles, such as the one in academia, remain un-won, there is still a place where women are not allowed, and virtually no outcry about it. I'm talking about the front lines of war, where they were banned from going by an act of Congress in 1994.

Even in our volunteer army that is hurting for numbers, women are still not allowed to volunteer to fight on the ground. On a cursory search of the web, rather than finding an outcry about this injustice, I found articles written by women protesting the rate at which women, who are supposed

to be out of harm's way, are being killed in Iraq.

So I mean this article to be a call to all women out there (ok, so my choice of forum is a little off). Even though I'm against the current war in Iraq, I think women should have the same opportunity as men to serve there as much as anywhere.

What reasons are there for this discrimination? I can only think of three concerns, all of which arise because of the typical male chauvinism that has been used to defend positions of discrimination in the past.

First, there is the concern as to whether or not a woman would be able to perform physically as well as a man. I'm sure there are plenty of women out there (see the world's strongest woman competition) who can outperform much of our current military on the front lines.

Secondly, on a related note,

there is the worry that the male comrades of women on the front lines would not be able to trust them due to their preconceived notion that women can't fight as well. I think this argument is clearly bigoted and can be thrown out immediately.

Thirdly, there is the concern of romance and distraction on the front lines. While this concern is potentially detrimental, it is already the duty of homosexuals on the front lines to avoid this sort of romance and distraction. Let's continue to leave this as a personal issue, rather than letting the army have a say in it.

Even though feminism has had its many successes in recent years, our army's front lines look much the same as they did in World War II. Given the lackadaisical reaction of many feminists today, maybe a woman's place is out of harm's way.

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ANNOUNCEMENT

Student Health Care Plan Altered

BY: DAVID CHEN

Professor Philip Hoffman, chairman of the Faculty Board Health Committee, announced on March 15 that the current student health insurance plan will be renewed for the next school year, with subsidies from the graduate student body.

The committee members voted during a meeting in March on keeping the current plan or a proposed alternative. After absorbing rising premiums for the past few years, the committee tried to design a plan with a lower premium. The key points of the proposed plan and the current plan are shown in the table.

The graduate students in the committee strongly favored keeping the current plan and after surveying their peers, found that many graduate students would be willing to pay a monthly fee to keep the current plan.

During this meeting, the proposal was modified to include an emergency fund that students could use on a case-by-case basis. Erin Flanagin, one of the undergraduate representatives on the committee, explains that this proposed safety net would allow the committee to exclude extreme cases when voting on the two

plans.

The undergraduate and graduate student representatives, as well as Kevin Austin, the director of health and counseling services at Caltech, voted in favor of keeping the current plan. The other members of the committee that were present voted for the alternative plan.

The student representatives met with President Jean-Lou Chameau, Provost Paul Jennings, and Dean John Hall to discuss the two plans again before the health committee would make its final decision. Flanagin said that the students again expressed their desire to keep the current health plan, and the graduate students reiterated their willingness to help offset the costs of keeping the current health plan with a monthly fee.

Professor Hoffman announced the final decision less than a week later, with a few "minor tweaks" in the works. The annual premium will remain at \$1815, with graduate students contributing \$150 for the first year and \$300 for the second.

One of the tweaks discussed was reducing the extension of benefits to recently graduated students from 6 months to 30 days, a move that is estimated to save 4% on the total annual costs.

The committee, which consists of faculty and undergraduate and graduate students, started meeting in September to discuss possible changes. After surveying the undergraduate and graduate students, the committee found that of four plans proposed, the most popular included a combination of increased annual deductible from \$150 to \$200, a new 20% co-insurance payment by the student, and an additional \$15 copayment per office visit.

From the survey results, the committee also evaluated other changes, such as a reduction in mental health benefits and changes to prescription drug costs. Many faculty members felt that since most claimants don't reach the 56 visit maximum currently provided, this number could be reduced. Students with a series mental illness covered by California Bill AB88 would still be covered at 100%. The student representatives felt that the cuts would be too detrimental to justify the potential savings.

By February, the committee sent a finalized proposal to several health care vendors for bids on annual premiums, which Chickering replied to with the lowest quote.

Erin Flanagin, one of the undergraduate representatives, ex-

plained that there were many subtleties since so many groups represented with different interests. The current freshmen and the incoming undergraduates are the only ones who pay the health insurance premium separately from tuition (enrollment in the plan is mandatory for all students).

Given the undergraduates' usage of the plan, Flanagin expressed disappointment that only one third of the undergraduates took the survey and that only 9% of the undergraduates made any comment of the health plan review. In contrast, 50% of the graduate students took the survey and 38% gave their opinions.

Flanagin also emphasized that the faculty members on the committee listened to the students' concerns, but the lack of undergraduate feedback hindered this process. "As premiums will likely continue to rise in the future and we will inevitably be faced with further decisions to pay more or scale back benefits, it will be important for students to tell the administration what is more important to them," said Flanagin. Although the decisions for next year's health plan are final, students may still direct comments or questions to him at flanagin@caltech.edu.



BY DANIEL ROWLANDS

U.S.

Australian will be first prisoner to face new U.S. war crimes tribunal

On Monday, Australian David Hicks will be arraigned in the first session of the new US military commission established by Congress to try prisoners held at Guantanamo Bay, Cuba. In 2004, he pled not guilty to charges of attempted murder of coalition forces, aiding the enemy, and conspiring to commit war crimes, but his trial was put on hold because of court challenges to the system of military tribunals established by President Bush to try enemy combatants. Last June, the Supreme Court struck down that system, finding that the president did not have the authority to create it, and Congress responded by creating the new military commission system that will try Hicks.

Hicks' lawyers object that the new system is no better than the old and that Hicks should be tried in a standard court-martial. Defense lawyer Marine Maj. Michael Mori said "When you don't use the established rules and procedures you risk convicting an innocent person and allowing someone truly guilty to escape justice by challenging the system." Defense lawyers and human rights monitors have also objected that the rules are stacked in favor of the prosecution and

hearsay and information obtained through coercion have been permitted. According to the chief prosecutor, Air Force Col. Moe Davis, "This criticism that we've created some novel Frankenstein, cobbled-together kind of system is totally inaccurate." Col. Davis predicted that once the military makes its case, the public will recognize the value of the tribunals.

Criticism of Attorney General Alberto Gonzales continues

On Sunday, three Republican senators criticized Attorney General Gonzales in televised interviews for his role in the firing of eight United States attorneys. The comments were partly spurred by the release on Friday of Justice Department documents relating to the plans for a meeting in which Gonzales discussed the dismissals with his aides about ten days before most of them occurred. The documents led to controversy because Gonzales earlier claimed that he was "not involved in any discussions about what was going on."

Senator Arlen Specter (R-PA), ranking Republican on the Senate Judiciary Committee, said he had told Gonzales on Saturday that him "he was going to have to have an explanation as to why he said he wasn't involved in discussions — that's the key word — and now you have these e-mails which appear to contradict that." Specter also commented that "We have to have an attorney general who is candid, truthful. And if we

find he has not been candid and truthful, that's a very compelling reason for him not to stay on."

Senators Chuck Hagel (R-NE) and Lindsay Graham (R-SC) also expressed concerns that the documents had damaged the attorney general's credibility. All three senators also objected to the White House's offer to allow Congressional interviews on the firings with Karl Rove, former White House counsel Harriet Miers, and other White House aides only if the sessions are not transcribed or conducted under oath: the senators maintained that the interviews should be transcribed to avoid inaccuracies. Senators Trent Lott (R-MS) and Orrin Hatch (R-UT) supported the President's conditions for interviews and Lott, the Republican whip, objected to the idea that it mattered if politics were involved in the firings: "The horrors of horrors — my goodness, how were they selected in the first place?"

WORLD**Iranians seize 15 British sailors in Persian Gulf, charging illegal entrance into Iranian waters**

Last week Iran seized eight British sailors and seven British marines who had just searched a ship in the Shatt al-Arab, a disputed waterway between Iran and Iraq. The British personnel were part of a Royal Navy patrol in Iraqi waters, hunting for smugglers under UN Security Coun-

cil authority. Britain claims the personnel never left Iraqi waters while Iran claims they had entered its territorial waters. The personnel have been transferred to Tehran and, according to Foreign Minister Manouchehr Mottaki of Iran, they may be charged with "the illegal entrance into Iranian waters." Britain has demanded "the immediate and safe return" of the fifteen and, on Saturday, the European Union called for the release of the Britons. On Sunday, Prime Minister Tony Blair said that the seizure was "unjustified and wrong" and reiterated the British position that it occurred in Iraqi waters.

Iran partially suspends nuclear cooperation

On Saturday, Iran scaled back cooperation with the International Atomic Energy Agency (IAEA) until the UN Security Council refers Iran's nuclear case back to the IAEA. Iranian government spokesman Gholam Hossein Elham said that the move was in response to "Saturday night's illegal and bullying resolution by Security Council," referring to sanctions unanimously approved by the Security Council due to Iran's refusal to stop enriching uranium. The new sanctions are only moderately tougher than the previous sanction regime, and include banning Iranian arms exports and freezing the assets of people and organizations involved in Iranian nuclear and missile programs. The sanctions would be suspended if Iran halts enrichment. Exactly what Iran's decreased cooperation will entail

is not yet completely clear, but the Iranian government claims it will still comply with the requirements of the Nuclear Non-proliferation Treaty.

SPORTS**Cricket: Coach of Pakistani national team strangled after World Cup loss**

Bob Woolmer, coach of the Pakistani national cricket team, was strangled inside his Jamaica hotel room hours after the team was defeated in an upset first-round cricket World Cup match by Ireland. No signs of forced entry were discovered, suggesting that Woolmer may have known his attacker. While the motive is unclear, suggestions have included crazed fans, disgruntled team members, and gamblers involved in possible match-fixing. Cricket has had significant recent problems with match-fixing and some have suggested that the Ireland match may have been fixed. Jamaican police held the Pakistani team for questioning temporarily, but allowed them to leave the country to return home.

Compiled from the Washington Post, the New York Times, National Public Radio, the Guardian (UK), and the Times (UK).

Watson fellows chosen

WATSON, FROM PAGE 1

back to the California coast to start a Ph.D. at Stanford and to work in their Center for Computer Research in Music and Acoustics.

Sun, former BoC Chair, said her project in international bioethics developed out of her interests in administration, medicine, and ethics.

"It sounds a bit crazy, but I love the ethics and the administrative work of the BoC so much that I want to make a career out of it," said Sun.

Sun will visit London as a "control" of international healthcare, since urban and rural healthcare are so similar in the UK, but will venture to Cape Town, South Africa, and Shanghai, China to see the difference between standards in the cities and farms.

Sun is only "somewhat" scared

of the health dangers abroad, but since she's planning on working with sick people for a living, she thinks she "better toughen up early."

"TB is for the most part a curable disease, AIDS is very difficult to catch, and you can avoid malaria if you're careful. So if I do get sick, it's probably because I did something stupid. Or someone tried to assassinate me."

Though both Garcia-Munoz and Sun were born outside of the US—Mexico and China, respectively—they haven't set foot outside of North America that they can consciously remember.

"The whole point of the Watson is to do something you've never done before and put yourself in a completely unfamiliar environment," said Sun, "so it might be a good thing that I haven't traveled much yet."

Teacher digs geology

BROWN, FROM PAGE 1

Brown. "Part one: Figure out how to ride the bus in Pasadena. Once you've figured that out, take the bus to Eaton Canyon. There's a wash and a debris field right there. They have to go there, look at the landscape and answer some basic questions from their observations. The goal is for them to realize that without preparation, they are allowed to walk outside, look around, make observations and come to conclusions without having someone tell them this is what they must do."

Since in geology, as Brown puts it, "the laboratory is planet Earth," two field trips are required for the class.

"It's an opportunity to get the freshmen outside, away from campus," said Brown.

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The first outdoors adventure he assigns is a day trip in which students walk south of campus a half mile to Lacey Park and examine a one hundred foot fault scarp.

The other field trip is a full weekend, during which the Ge1 students travel up the East side of the Sierra to Lone Pine and view volcanoes and glacial remains. They camp overnight and then spend the next day in the Panamint Mountains, west of Death Valley.

Michael Brown will be teaching Ge1 again this spring. Brown views his external excursions and unusual problem sets not just as an opportunity to expose Caltech's freshman to some much needed sunshine, but "part of the goal of the class is to teach them a little wisdom along with smartness. But they've already got the smarts."

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Photo by Andy Chung

Rene makes SCIAC team

BY NATALYA KOSTANDOVA

Junior co-captain Rene Davis became the first woman in Caltech's history to be selected onto the All SCIAC basketball team. Chosen as a player for the second team, Davis is now the third woman from any sport to be selected by SCIAC. Davis leads the conference with 156 total rebounds and 106 defensive rebounds, and is seventh in the conference with 179 total points and 12.8 points per game. Davis is the first player to average double double and holds eight Caltech records.

Davis gives much of the credit for her selection to the basketball team. She wrote in an e-mail, "A Caltech women's basketball player has never been picked for this team, though many have deserved it. But the first year that we win, we get on it. So to me that shows how the coaches in SCIAC are finally starting to realize that they have to pay attention to our team."

Now that the basketball season is over, Davis will participate in Caltech's Track and Field program. She will return to basketball next year.

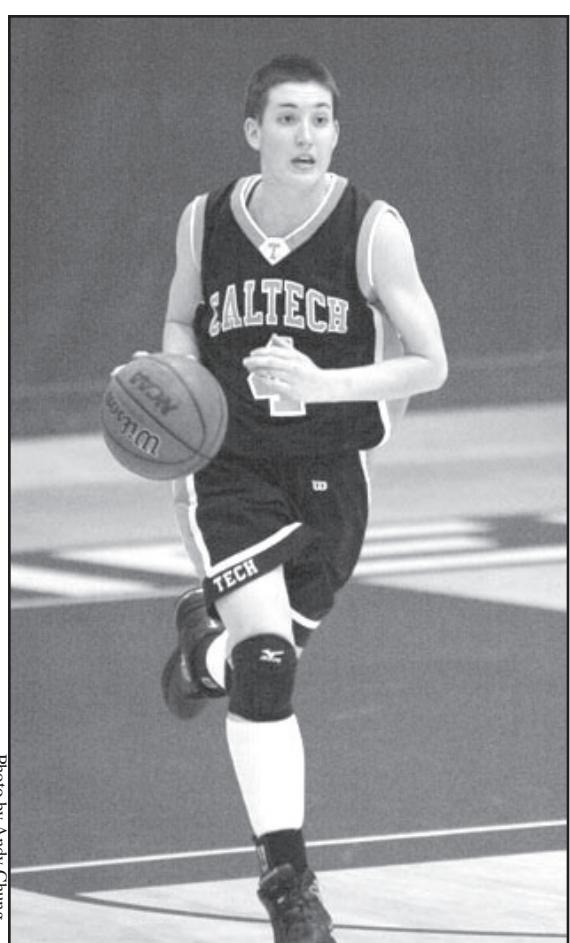


Photo by Andy Chung

RENE DAVIS

First Teacher to make All-SCIAC basketball team

Top: Coach Sandra Marbut and Rene Davis celebrate the win over Whittier on Feb 10.

Left: Davis dribbles up the court in the Whittier game.

Right: Davis shoots the winning free throw of the Whittier game to score the third and final win of the women's season.



Photo by Andy Chung



Photo by Mark Eichenlaub

Track & Field: SCIAC Lower Quad Meet and Oxy Distance Carnival

Left: Zach Higbee looked much better on the earlier hurdles in this 110-m race, where he earned 4th place in the SCIAC Lower Quad Meet on Saturday, March 17.

Right: Matt Kiesz (handsome man, center) found himself in a thick crowd as he ran Caltech's sixth fastest 800-m performance of all time at the Oxy Distance Carnival on Friday, March 16.



Photo by Mark Eichenlaub



Crippling Depression goes PASS-FAIL

Sometime freshman year, I read the entire collection of Crippling Depression comics in one sitting, absorbing the quirky crap that would become part of my Caltech life.

Central to its popularity, every comic depicted phenomena true to the Tech experience. The comic strip was made by three Techers: Ben Lee, Tim Wan, and Mike Yeh—now alums—that made light of their painful life at Tech in the form of a weekly cartoon strip.

The strips were humorous, and yet they had the tendency to make readers groan with familiarity. Candid depictions of glomming, Chem. 3a, Ditch Day, ridiculously difficult sets, and sleep deprivation were regular topics, along with actual incidences that happened to anime-style characters based on the creators themselves. There was also Eileen-- a fictitious token girl based on an amalgamation of “all Tech girls,”-- to balance out the guys’ hi-jinks and add a sane, but nagging voice of reason to the dialogue. Each strip was a very impressive work that captured a quintessential Tech moment in a mere four cells.

Of course, when I arrived at Caltech, the era of Crippling Depression was bygone, and I thought that I had just missed the train on a good thing. However, that’s not completely true—the era has been re-born into a new comic strip.

Recently, I discovered that two thirds of the guys from CD are still up to their old antics, in web-comic format. The strip, called PassFail Studios, is not about Caltech life, but humorous takes on superheroes from our favorite comic books. There are spoofs and references to Spiderman, the Fantastic Four, Batman, etc. – pretty much no comic in the history of man is safe from the ridicule and mockery of Tim Wan, Mike Yeh, and Scott Singer, guest writer of CD and Ben Lee’s replacement.

I had an interview with the guys to get the lowdown on PassFail Studio comics.

BY CINDY KO

Cindy: How did PassFailStudios get Started?

Scott: After Crippling Depression, Tim wanted to write a comic about high schoolers with super-powers.

Mike: I referred to it as “Tim’s Fantasy Life”. It involved a bald character conveniently named “Tim” managing newfound super-powers as well as being caught in a love triangle between a cheerleader and a tomboy.

Tim: My high school had hot girls.

Scott: Yeah, it was college that had the uggos.

Mike: He wrote up a couple pages, but after a while he got lazy.

Tim: I didn’t get lazy, I leveled my Priest to 60.

Scott: All of us were reading a lot of comic books around that time.

Tim: Then I figured it’d be easier to get an audience by drawing established superheroes acting like dicks.

Cindy: PassFail Studios recently celebrated their one-year anniversary-- comment!

Tim: We decided to celebrate it with a pin-up.

Mike: I drew some xorn.

Cindy: Xorn?

Tim: Uhh, I think something

got lost in the translation in the script to Mike.

Scott: We’ve only done about 45 comics, and padded to 52 by a bunch of pin-up art.

Mike: It took the three of us a year to release what typical comickers do in about two months.

Tim: Did I mention my Priest is at level 60?

Cindy: What the hell is that? Getting back to the topic: how far have you come in a year?

Scott: About 52 issues.

Mike: And a 500% increase in traffic.

Tim: Which brings our total revenue to about...\$5.39 from Google Ads.

Mike: Are we being paid for this interview?

Cindy: Uhh I don’t think so, but I have an Arby’s coupon you guys can split up. Next question: is PFS where you want it to be, at this point?

Tim: If Mike could keep up with our writing we would probably publish once a day.

Mike: I hate you.

Scott: It’s not like you have a girlfriend.

Cindy: Where do you see PFS going in the future?

Mike: Our comic will blot out the sun!

Tim: Then we will write in the



From smallest head size to largest: Mike Yeh works for “a fruit company,” Tim Wan likes to hang out at the dumpsters behind Pizza Hut, Scott Singer is a grad student in physics at UCLA.

shade.

Scott: Initially we were hoping for some kind of deal to get a mini-series, but I guess the Marvel editors don’t want a comic with the same Wolverine head photoshopped 6 times making an abortion joke.

Cindy: Who is your audience?

Tim: Spartans.

Scott: Middle school girls.

Mike: First, there’s a handful of comic fans who know about the X-men character Xorn. Then there are the fans who know that the Xorn who claimed to be Magneto turned out to be Xorn’s twin brother, also happened to be named Xorn. Really, we just poke fun of the absurdity of the comic universe, and those who are familiar with the characters and latest “EARTH-SHATTERING” plotlines tend to get the most out of our strip.

Tim: Our first comic was some horrid mishmash of Ultimate Nick Fury, Snakes on a Plane, and the G.I.Joe movie. I’m pretty sure that whittled our potential audience down to the 3 guys working at Comics Factory.

Cindy: Are there lots of inside jokes that make it to the strip?

Scott: No, I think our jokes are pretty mainstream.

Tim: If you don’t get our jokes, then it means you’re old and out of touch.

Cindy: Who comes up with the writing?

Tim: Not Mike.

Scott: Usually Tim and I come up with a script. Mike then reads the draft, promptly rejects it due to

moral objections, and goes back to drawing schoolgirls.

Tim: Unlike the rest of us, Ben matured and moved on from webcomics.

Mike: Yeah he has a girlfriend or fiancé or something, so he isn’t allowed to participate in making women jokes anymore.

Tim: I believe he picked “The Sex” over “The Laughs”.

Cindy: Your drawing style has changed since Crippling Depression. Comment.

Mike: I wanted to try to level-up my drawing skills, and move away from cutesy anime crap. I have to constantly remind myself not to draw eyes that take up half the area of the face.

Scott: I love Mike’s drawings so much I would totally get it pregnant behind a middle school.

Mike: I’ve even gone back to remaster our original Crippling Depression strip, and it’s available on the old website. People say that an artist should learn to draw realistically first, so that any cartoony stylizations are deliberate and not due to lack of skill... so here I am, trying my best to accurately portray a man wearing a spider costume.

Cindy: Any last words?

Tim: I left \$100 taped to the bottom of the sink in Lloyd 204.

Scott: The battle is over, Leonmikeas! By morning, the immortals will surround us. The Hot Gates will fall!

Mike: This battle is over when I say it is, Scottxos. PassFailStudios! Prepare for glory!

Cindy: THIS IS MADNESS!

Mike: THIS * IS * SPARTA!!!!!!

Conclusion:

In some ways, the name of the new comic website is a response to the title of their old one. When you start at Caltech, your life is a Crippling Depression. But as you gradually make it through each year-- and certainly by the time you are out of Caltech-- your attitude changes to a new outlook on what once was the circle of pain in your life: “Pass-Fail.”

The entire Crippling Depression archive is online at: CripplingDepression.com

PassFail Studios comics are released on a weekly basis and can be read at: PassFailStudios.com

Crippling Depression #47: SLEEPING DURING LECTURE

GUIDE TO SLEEPING DURING LECTURE:
POSITION 1: Head Back
Risk: Low Comfort: Low



POSITION 2: Drooling Wombat
Risk: Low Comfort: Medium



POSITION 3: The Sick Whale
Risk: Medium Comfort: High



POSITION 4: Cocoon
Risk: What are you, stupid?
Comfort: Very High.



ME 72 competition is back with more bots

BY VIBHA LALJANI

Nine bots were lined up to climb to the glory of the competition held at the end of the term of Me 72 Engineering Design Laboratory and Contest. The goal of the contest was to move the center-link of a chain from inside the start zone up a sloping surface of a plastic mesh. At the end of 48 seconds, Peter Haderlein's radio-controlled device, in cooperation with Elliot Pallett's device had its center-link highest, for the win.

When asked about the trick to their design, Peter modestly replied, "I don't think there was a "trick" to our design necessarily, but we definitely built our devices with a plan in mind that seemed to work. Elliot's climber weighed less and had a lower center of gravity than the others, and his transmission was so efficient he ended up being very fast at getting up the mesh. Like other teams, we opted to have one device climb the course and the other defend/get in the way of other teams. The device I built utilized plexiglass wheels with silicone rubber treads, quite different from the spiked-tooth wheels many teams were using. It meant I couldn't climb very well at all but I had a

lot of speed and maneuverability on the flat portion of the contest area."

Their strategy faced intense competition from other designs. For instance, the robot built by Ghryn Loveness to assist that of Mike Ikeda, followed quite closely behind that of Peter and Elliot. Ghryn believes that making a design choice early was the most significant contributor to the success of their team in attaining second place; like Haderlein and Pallett, their team also decided to have one robot to prevent the opponent's robot from climbing by getting in the way or shaking the mesh to help dislodge the opponents. Said Ghryn, "One could help push the other robot and keep it from falling off while it proceeded up the mesh with the chain."

Yet another design that proved to be a good competitor was by Cindy Ko and Paul Tomassi. Their strategy provided a very cheerful moment to the team by winning in the mock competition held the previous afternoon. Cindy said, "Our device was extremely fast. However, that sometimes also made it very difficult to drive and control."

The teams, of course, are not completely contented with their

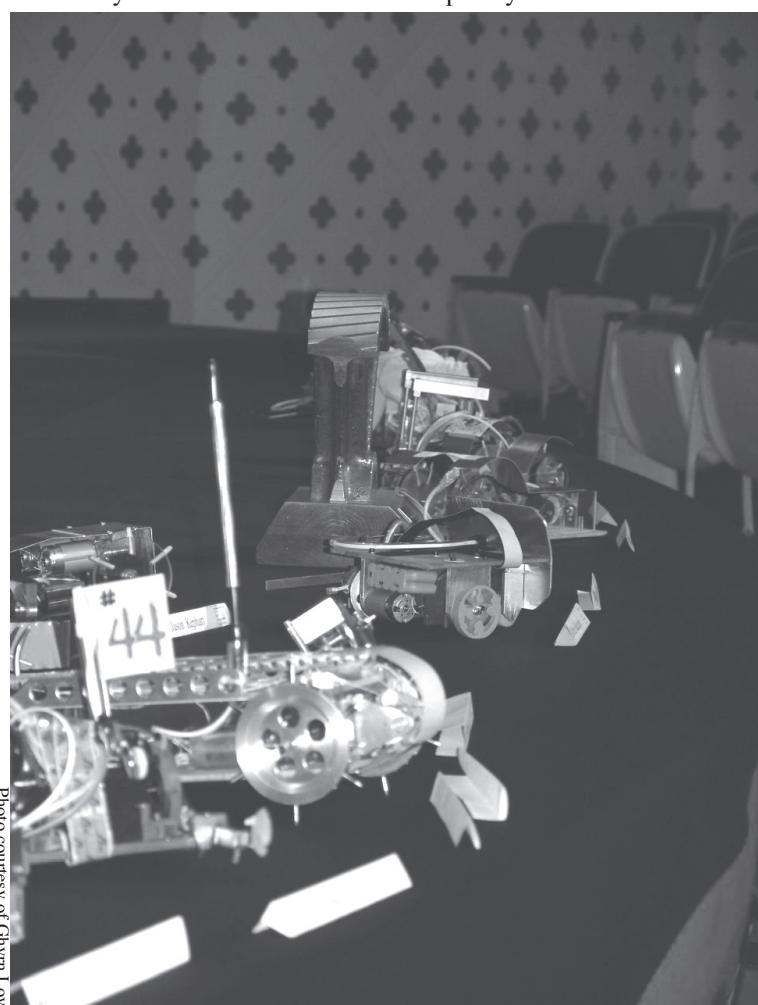


Photo courtesy of Ghryn Loveness

The ME 72 robots lined the stage of Beckman Auditorium before the competition.



Photo courtesy of Ghryn Loveness

Pete Haderlein and Elliot Pallett, winners of the ME 72 competition, wait backstage before pitting their robots against their competitors.

robots that can just climb, block others and lift a chain. All of them had a stock full of ideas for things they could have done to make their bots better, faster, stronger and more. Cindy, for instance, wished she had started going to shop earlier. This would have allowed her more time for testing and fixing some bugs she discovered quite late. It would have also given her more time to plan how she would take the chain.

Although the competition was tremendous amount of efforts, with lots of hours spent in the workshop, it had its enjoyable moments. Ghryn said, "We had some great sparring (test run competitions) with the other teams. This and during the actual competition proved to be much more fun than I think any of us had anticipated. It was like a sporting event with an audience. The mechanical engineering students experienced an exhilaration, a sense of accomplishment, and a wonderful

support from friends and fans in the audience that I think few engineers get to experience." Tim Kwa, who worked with Chris Schantz, was extremely elated and felt a huge sense of satisfaction when he got his transmission to work for the first time. He said, "I was like, "W o w . No way. I'm actuall y acc om - plishing s o m e - thing!""

The survivors in the class have many tips and tricks for their successors in Me 72. For instance,

Tony Kelman, has done ME72 twice now, as a student last year and as a TA this time around filling in for someone who dropped the class, experienced two very different competitions. He said, "A common piece of advice for future ME72 students would be to not waste time. Start making pieces early, so if your design is unconventional and doesn't work as well as you thought it would,

you can find out before it's too late. I'm not sure if it will be a two-term class again next year, but first term this year was pretty much a write-off for almost every team. Come second term though, a few people really stepped up. Elliott especially was always the first person in the shop and one of the last to leave, and he never considered his design finished. He spent enough time in the shop to redesign and remake his robot 3 times, then test, tune, and perfect everything right until the competition. It's no coincidence that he had the most capable device and won the competition. Winning isn't everything, Cindy Ko and a few others spent huge amounts of time in the shop trying to get their devices to work without a lot of success in the contest. Either way, ME72 is not a class that can be blown off or left to the last few weeks."

While the class does not allow for slacking off, Peter believes that students still can and should have a good time. He said, "I think anybody who plans on taking the class should remember to have some fun with it, it's one of the only chances one has at Tech to really build something concrete that they can call their own."

For more information about the class and the competition, please visit the class website: <http://me72.caltech.edu/index.html>

WINNING TEAMS

1st:

Peter Haderlein/Elliott Pallett

2nd:

Mike Ikeda/Ghryn Loveness

3rd:

Bryan Hires/Cedric Jeanty

Programmers take twelfth place worldwide

BY NATALYA KOSTANDOVA

As if winning a regional level of competition and advancing to the world finals were not enough, a team of three Caltech students accomplished what very few Tech teams had done in the past. Po-Ru-Loh, Paul Nelson, and Hwan-seung Yeo earned a bronze medal at the ACM International Collegiate Programming Contest (ACM ICPC) that took place on March 12-16 in Tokyo, Japan.

The team, coached by sophomore Eric Stansifer, placed twelfth out of the 88 teams that made it to the international level. The teams were selected from the 6,099 teams that participated at

the regional steps of the contest, representing 1,756 universities from 82 different countries of the world.

Given the high caliber of the contestants, placing in the top twelfth is not an easy task. Loh wrote about the competitors in an e-mail, "They were impressive. Many names were familiar from other competitions such as TopCoder, and it is no exaggeration to say that the people at this contest were among the fastest and brightest coders in the world."

The top finishers in the contest have traditionally been teams from Europe. Aside from MIT, it is highly unusual for a team from North America to earn a medal.

Since the official beginning of the contest in 1993, Caltech placed in top twelve only four times.

The level of competition is not, however, the only difficult aspect of the contest. As reported on ACM ICPC's official website, the contest is nothing less than "a battle of logic, strategy and mental endurance," with some problems so challenging that they are "simply too hard to solve – except, of course, for the world's brightest problem-solvers."

Aside from problems that the Techers had to solve during the competition, they had other barriers to consider. One of such barriers came up even before the team had a chance to arrive to Tokyo.

After the plane that Loh, Nelson, Yeo, and Stansifer boarded ascended to 8000ft, the cabin failed to pressurize, so the plane was forced to land. With the switch in flights, the team lost a day that it planned to spend in Tokyo.

Still, the trip to Japan offered some fun to the four Techers. Loh wrote, "The contest itself turned out to be extremely exciting, but aside from this, it was also fun just to be taking a trip to Tokyo. IBM also sponsored a closing ceremony that featured Chinese gymnasts, a professional pickpocket, a juggler from Las Vegas, and magic tricks; all of them were amazing and some pretty hilarious."

Curiously, Loh, Yeo, and Nelson all have prior experience at the ACM ICPC. Loh and Yeo represented Caltech two years ago, while Nelson participated with the Stanford team last year before coming to Caltech for grad school.

The ACM competition has its roots in a programming competition hosted by the Alpha Chapter of Upsilon Phi Epsilon Computer Science Honor Society that took place at Texas A&M in 1970. Now operated by ACM and sponsored by IBM since 1989, the contest attracts thousands of students every year.

From microscopes to telescopes

What microbiologists want to know about black holes

BY: SARA MCBRIDE

In microbiology, a "black hole" is a deletion of genes that are detrimental to a pathogenic lifestyle. Thus, pathogens use "black holes" to enhance their virulence. This gives black holes a negative, fearsome aspect. Feeling the need to put black holes in a more positive light, or no light as the pun would have it, I sat down with Caltech's Feynman Professor of Theoretical Physics, Dr. Kip S. Thorne, who among other accomplishments, wrote a popular book entitled, *Black Holes and Time Warps: Einstein's Outrageous Legacy*.

We estimate that there are 30 million species of bacteria on planet Earth. How many black holes are in the Universe? As many as microbes on Earth?

"On observational grounds we know that nearly every big galaxy, the size of ours or larger, has a black hole," said Thorne. I had been ogling the massive array of equations and diagrams strewn across the long white board of Dr. Thorne's office. I kept imagining Einstein with his wild hair standing at the white board arguing relativity with Dr. Thorne, who in contrast to Einstein, has a freshly shaven head.

Kip continued, "We have a giant black hole at the center of our galaxy with the mass of 3 million solar masses, which means it pulls gravitationally the same as 3 million suns. But there are lots of other smaller black holes. We can only estimate the number of small black holes through stellar evolution."

Our current observations and projections of stellar evolution allow us to estimate the number of black holes that may exist. Thorne said, "In our galaxy there are probably 100 million small Black Holes. But that's compared to a trillion stars. So one in every 10,000 stars collapses into a Black Hole."

For every cell in the human body, we have an estimated 100 bacteria. Yet, we still survive. Considering our galaxy's ratio of black holes to stars is 1:10,000 in favor of the star, I'm not too worried about our sun collapsing and eating Earth. But just in case I was ever to be recruited for a biological mission aboard the USS Enterprise, I asked about the size of black holes and the likelihood of ever encountering one during interstellar space travel. Kip answered, "Black Holes are awfully small. The Sun is roughly one million kilometers in size. If it were to collapse to form a Black Hole, the Hole would be about one kilometer in size. The giant Black Hole at the center of our galaxy is three million times bigger, a little larger than the sun."

"When I was eight years old, my mother helped me build a model for the solar system. She walked me through the calculations. We drew the sun with chalk as a circle four feet in diameter on the corner in front

of our house. So where was Earth? Where was Jupiter? Where was Pluto?" Kip started to laugh and said, "Pluto was in the next town three miles away. So the distances of interplanetary space are enormous and that's just our solar system. Black holes are tiny as astrophysics distances go."

After Thorne's analogy I envisioned something the size of an adult human male with an invisible spec of a single bacteria on the surface of his right eye -

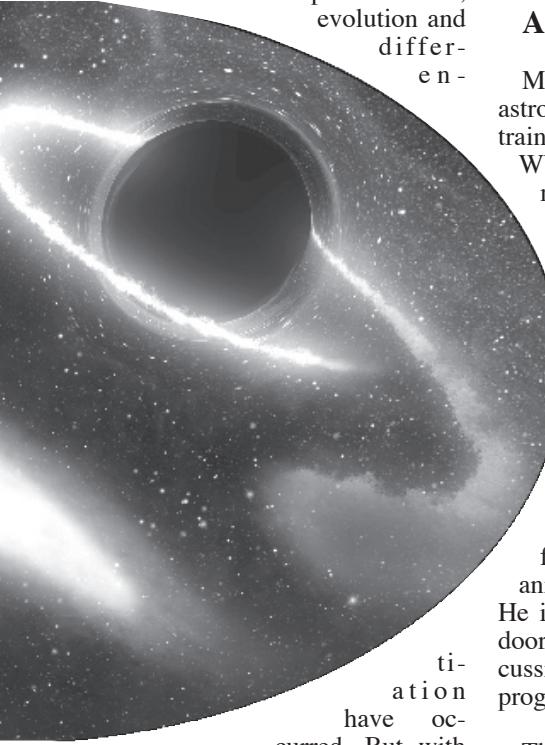
bow. I realized that the spec of bacteria was a Black Hole in relation to a portion of our galaxy. Which led me to ask, "What else is out there?"

Kip replied, "There is a whole zoo of objects in our universe, I suspect, that are made solely or largely from warped space and warped time, instead of from matter. The black hole is the most famous of them. There are singularities; the big bang itself was a singularity. There are also singularities inside Black Holes where the warps of space and time become infinitely strong; and there might be 'naked singularities' outside Black Holes. There are probably things called cosmic strings; these are fundamental strings that may have been inflated to cosmic size during the earliest moments of the universe. They are like cracks in the fabric of space in the sense that the geometry of space is not what it ought to be around them. The circumference around a string is a little bit less than pi times the diameter. These cosmic strings have huge tension. If you pluck one, waves go down it at the speed of light producing gravitational waves as they go. But this is still all just theory. We've never yet 'seen' a cosmic string."

"What other objects are there made from warped space and time? We don't know. But the ideal tool to explore this 'warped side of the universe' is radiation made from

the same stuff as these objects: ripples in the fabric of space and time, which we call gravitational waves, and which LIGO may soon observe. LIGO will open our eyes to the Universe's warped side."

Max Delbrück once wrote, "Any living cell carries with it the experience of a billion years of experimentation by its ancestors." In cells, bacteria, organisms, primates and Black Holes, billions of years of experimentation, evolution and difference -



tion have occurred. But with this differentiation, nearly all things in the universe share one function in common: They all grow. When I asked Kip how Black Holes grow, he said, "They grow by eating, just like you or I grow." But one function is unique to Black Holes: "In practice, a Black Hole lives forever."

In honor of Max Delbrück's centennial celebration, The Tech is running a series of cross-disciplinary Q & A sessions between scientists in completely different fields of studies. This week's questions were contributed by Caltech Microbiologist Dianne Newman, and Caltech microbiology graduate students Janet Chow & Melanie Lee.

About Max Delbrück

Max Delbrück's first interests were in astronomy, and in the late 1920's he was trained as a theoretical physicist. During WWII he taught in the Physics Department at Vanderbilt University. But it was his postdoc years where his biological curiosity was aroused by Niels Bohr whose speculations that the complementarity argument of quantum mechanics could be applied to other sciences, especially biology. In 1947, Delbrück became a professor of biology at Caltech where he played a critical role in developing the field of molecular biology. In 1969, he was awarded the Nobel prize in Medicine for discoveries in the replication mechanism and genetic structure of viruses. He is often remembered for knocking on doors across the Caltech campus and discussing biological systems with computer programmers and physicists.

Through the end of March, the third floor of the Fairchild library is pleased to display four elaborately detailed posters commemorating the life and work of Max Delbrück.

Photo courtesy of NASA/JPL-Caltech/Tim Pyle (SSC)

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How to prepare for Ditch Day

BY: HAMILTONY FALK

It has become increasingly clear to me, and hopefully to you as well, in the past weeks and months that I am a senior and am not long for this world of Caltech. I've found this final year is one of great power for a senior over those is lesser classes, and as many philosophers¹ have noted, with great power comes great responsibility. Thus I will share with you some of the things I have learned in my nearly four years in Pasadena, including some things that have only become clear to me this very year. That's right; I will reveal to you how to prepare for Ditch Day. I should warn you that you may want to follow this advice in a hurry, as Ditch Day is tomorrow (Editor: insert tomorrow's date here). I'll offer some more long term advice for the classes that will have more than just the one day to prepare as well, so that despite the last minute-ness of this appearing in print, all of my useful knowledge² will be passed on.

First, be sure not to ask seniors when Ditch Day will be, as they might lie to you, or worse, tell you the truth. This will only add more information to your already crowded brain which should be focusing its capacity on core, without knowing the truth of what you've been told. Additionally you should not try to gain information from other sources

(professors, administrators, fortune tellers or super-intelligent computers) that might have found out clues as to the secret date. In order to sate your curiosity I'll tell you the exact date. It is (editor, again please insert tomorrow's date).

Another trick to prepare you for Ditch Day is to get plenty of sleep every night. Since you won't know exactly when the big day is, you'll want to be well rested every day so that you won't be sleeping during the festivities, and also in might have been that day so you'll want to sleep to recover from what might have been a not very exciting Ditch Day. You should also keep hydrated (since you don't want to be too dry on Ditch Day, or if you just had it, you'll want to rehydrate) and eat well but not to excess so you're not bloated.

It is very important not to distract the seniors from building their various stacks, as a poorly built stack is almost always the result of a distracted³ senior. This means that underclassmen should bring seniors offerings of food, drink and entertainment so that the senior is not forced to spend their copious amounts of free time attempting to acquire these necessities and can focus on their stack building. Additionally it will lead to a better stack if the senior is not engaged in the pursuit of the gender of their choice, and so an effort should be made to introduce

students from non-tech schools to the seniors, after said students have been appropriately informed as to the impressiveness⁴ of the senior. The most important behavior to avoid is complaining about "work" to a senior. It is likely that a senior has completed most of their requirements and reminders of past difficulties may result in retraumatization which will require much firewater to

Descartes said it is better to believe in Ditch Day, because if it is not you've lost only an hour or so of your morning, but if it is the one true Ditch Day then your rewards will be the infinite joy of doing a stack.

purge. Plus, nothing is as tedious as hearing someone complaining about how they get two hours of sleep because they have ACM 95, Phys 12 and Pain 34 (Introduction to aching) when you're trying to take a nap after lunch, a difficult task already for seniors sleeping 10 hours per night.

Sometimes underclassman will sleep through what they believe is a fake Ditch Day, only to wake up and find out that it was in fact a fake, and they're glad they didn't get up early⁵. Unfortunately this

enrages the seniors because it makes their god-like powers seem flawed, which of course is merely an optical illusion. If that is not enough to convince you to treat every door-banging, pot-ringing, voice-shouting early morning announcement of Ditch Day as true, consider the thoughts of the great philosopher Rene Descartes⁶ in what he called "Pascal's wager". Descartes said it is better to be-

lieve in Ditch Day, because if it is not you've lost only an hour or so of your morning, but if it is the one true Ditch Day then your rewards will be the infinite joy of doing a stack. In addition, sometimes seniors have been poisoning you for weeks and inject the provided donuts with the antidote.

Finally, while participating in Ditch Day, one should remember that seniors have gone through many trials and tribulations to provide you with the stack that you are enjoying, so you should do anything suggested no matter how demeaning or boring. Also, the seniors are probably lurking in the bushes watching you, and will probably light you on fire if you don't do exactly as you are told. Do not try to catch these seniors, as they are fleet of foot and know the tangles of the campus well, and will only lead you on a merry chase before disappearing. When you have finished your tasks you will be rewarded, although if the

reward does not please you do not do things to the senior's room, as they would prefer you didn't. Remember, in the immortal words of Captain Batman⁷ "It is not the size of the dog in the fight, but rather it is if you have a good time on Ditch Day, which would most likely be achieved by following the advice of a column written in the California Tech."

(Footnotes)

¹ In this case, Rene Descartes, or as he is known to laymen, Spiderman.

² Knowledge in this case being the things I have learned as a Caltech student as well as things I make up.

³ Distraction is a leading cause of lame stacks, ranking behind laziness and ahead of the laws of physics, drink and running out of time as stack destroying factors.

⁴ For example, the senior could be described as a former male model who flies a helicopter by day, and fights crime at night, as a werewolf.

⁵ And sometimes they wake up to find everyone else in the world has been killed in a nuclear war and they finally have time to read all the books they want, but then they break their glasses.

⁶ Or 'Aquaman' as he is more commonly known.

⁷ Although Capt. Batman is widely believed to be Rene Descartes, he is in fact the author of this very column.

What I Did During My Spring Break

An authentic school report by the eight-year old Mark

BY: MARK EICHENLAUB

Rather than write something original for the The Tech during my break, I decided to reprint an old classic: my spring break vacation report written for my second grade teacher, Ms. Heiser, on April 16, 1993, when I was eight years old.

Dear Mr. Mrs. Ms. Madam Teacher Heiser,

I had a very bad Spring Break this year because my mommy was pregnant. Every day my mommy would talk to me and let me listen to her belly at the same time and then she would say to me, "You're going to have a new little sister to play with all the time and be very nice to her and help her eat dinner and clean her crib and change her diapers and I WANT ICE CREAM RIGHT NOW AND SOME PICKLES WRAPPED IN SWISS CHEESE WITH YELLOW MUSTARD ON THEM NOT THAT NASTY BROWN MUSTARD WHERE'S THAT LAZY HUSBAND OF MINE OH MY BACK HURTS"

Well Miss Master Mz Teacher Heiser, then after that my mommy would try to stand up but she would have to try like three times and then I would help her to stand up and she would say, "Oh thank you honey GERRY COME IN HERE RIGHT NOW!"

Then my daddy would come in and he would say, "Let's check the book honey, let's check the book," he would say that a lot of times like I don't have that many fingers any more after daddy took me to work at the construction site last year.

Then my mommy would start to say some bad words like "Darn" and "shoot" but I don't know what because I put my hands over my ears and my daddy would run all over the house looking for the

book he got for free from the baby doctor under the seat cushions and stuff and then he tripped on my toy Super Teenage Ninja Turtle and it was Mikelandjello and he is my favorite one because he likes pizza and I like pizza, too.

I don't like the crust of the pizza but my dog likes the crust of the pizza and her name is Buttercup but I just call her Butt for short. I love my little Butt. When we have pizza for dinner I am always very happy but I try to feed the crust of the pizza to Butt because she likes it and I don't like it but my dad says not to do that because my Butt can't eat people food but I think that if I can eat dog food when mom and dad aren't home then why can't Butt eat people food sometimes. It's not fair.

So then Teacher Heiser I don't know if you are a boy or a girl because you have a voice like a boy and you have short hair but you also wear a dress and only girls where a dress but anyway after that one day on Thursday I gave Butt some of my daddy's favorite drink from the refrigerator that I'm not allowed to have and she died. It was very sad for me because I loved her very much but she just died and wouldn't play with me any more.

Daddy said he would bury Butt in the back yard at night but that he would do it the next day because that was trash day and the trash men would help him dig a nice grave. So then the next day was Friday and dad buried Butt in the back yard and I made a little cross out of popsicle sticks and put it over top of her. Then on Sunday we had to go to church for the first time since Christmas. But half way through church when everybody was praying my mom started screaming really loud and my dad picked her up and ran away. I didn't know what to do but everybody said it

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