The California Tech

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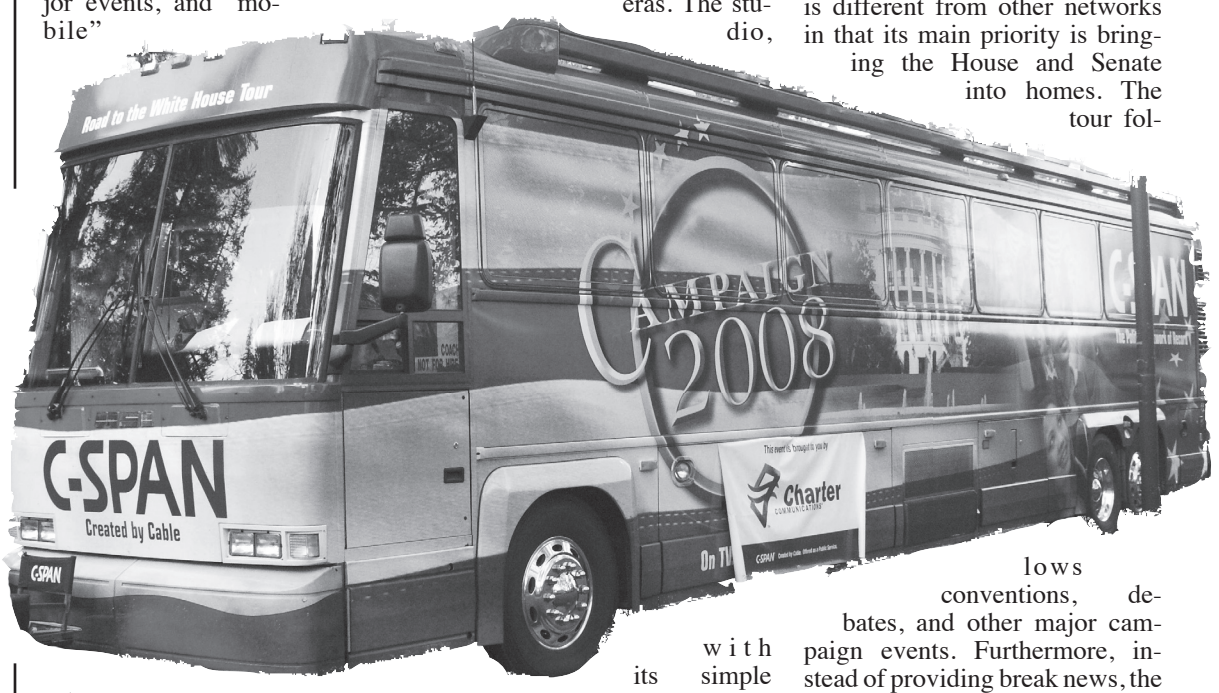
CSPAN makes pit stop at Caltech last week

BY GLORIA TRAN

The Cable Satellite Public Affairs Network (C-SPAN) stopped by the Caltech campus Tuesday afternoon on its two-year long "Road to the White House" tour. The 48-continental-state tour, launched in 2007 and lasting until January 2009, serves two major purposes: programming and coverage of major events, and "mobile" education about the network.



One of the two C-SPAN campaign tour buses parked on San Pasqual Mall and invited over 100 Caltech students, faculty and staff on-board to view biographical clips of the 2008 presidential candidates, discuss C-SPAN's different services, and see the television production studio equipment aboard the bus.

The interior of the 45-foot charter bus is divided into two compartments: the control room and the filming studio. The control room consists of an audio and video board that controls two cameras. The studio, with its simple setup of table and chairs, serves as the backdrop to interviews with political figures at major campaign events. The eight producers of the program have interviewed such guests as the heads of the House and Senate as well as Clinton and Bush within the studio aboard the bus.

The C-SPAN "mobile classroom" visits middle schools, high schools, and colleges in order to get into the "heart of the community to act as a transparency to the government," explains tour guide and community representative, Rebecca Stuart.

According to Stuart, C-SPAN is different from other networks in that its main priority is bringing the House and Senate into homes. The tour follows conventions, debates, and other major campaign events. Furthermore, instead of providing break news, the network offers the government's "unedited, unfiltered" response to

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Caltech thinks big about going small

BY MOLLY DAVIS

Nanotechnology took a big step forward last week at Caltech: the Alliance for Nanosystems VLSI (very-large-scale integration) was formed when Caltech's Kavli Nanoscience Institute (KNI) and LETI-MINATECH – the Laboratoire d'Electronique et de Technologie de l'Information-Micro- and Nano-Technologies in Grenoble, France – got together to transform the current state of nanotechnology into the vision that Richard Feynman had for it 50 years ago: self-replicating nanomachines, microscopes so powerful that they could see atoms, and the entire 24 volumes of the Encyclopedia Britannica printed on the head of a pin.

Caltech has been working on making things smaller for the past decade. They've produced many advances, such as the nanoelectromechanical system (NEMS) "nose:" an olfactory system based on silicon chips. The tiny chemical sensor array – only a few tens of nanometers, or small enough to fit 50000 on the period at the end of this sentence – detects molecules that are passed over it and reads a chemical fingerprint, identifying the molecules, and thus the "scent."

LETI has been in the business of micro- and nanotechnologies for more than 30 years. They operate a production and research plant that has turned out many successes in microtechnologies that are used around the world today, such as products from STMicroelectronics, Tronics Microsystems, and many others. Further, they are in the business of innovating systems such as medical devices that can be implanted and left working in the body, flat screens made of carbon nanotubes that may some-

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From the Editors

Climate deniers fall for hot air hoax

Does anyone else remember the Sokal affair?

In 1996, a physicist named Alan Sokal got a hoax paper published in the postmodern cultural studies journal Social Text which he'd built around the silliest quotations about math and physics he could find by humanities academics. Called "Transgressing the Boundaries: Towards a Transformative Hermeneutics of Quantum Gravity", it drew comparisons between quantum gravity and the pseudoscientific concept of morphic fields. The journal, notably, was not refereed. The editors of Social Text are subsequently quoted in interviews as having said they thought it was "the earnest attempt of a professional scientist to seek some kind of affirmation from postmodern philosophy for developments in his field". Those who disapprove of the whole thing, of course, claim Sokal didn't know enough about the philosophical positions he was criticizing to say anything coherent in the first place.

Well, it's been done again, although a little differently, but this time the people who got egg on their faces weren't the editors of an obscure social theory journal, but instead prominent professional blowhard Rush Limbaugh and a dozen rather high-profile online climate science deniers, including (ouch!) Reason magazine. Pretty good for a paper which includes equations like the following:

"Q3uct + 3Ψ = XFo x Δjy {(∑y,ct79 + θtq-1)- λjc +2}Δ3-¾Φ2,Ω13b

Where Q is raw mass, u is area, c is osmotic conductivity, Ψ is the vertical (neo-Falkian) benthic discontinuity, X is concretised diachronic invariance (P-series), F is trans-dimensional flow structure and jy is the non-rectilineal harmonic regressivity of the constant Δ."

If you don't believe that they're all this bad, take a look at the copy we've got saved on tech.caltech.edu (go to this article for the link). The paper is titled "Carbon dioxide production by benthic bacteria: the death of manmade global warming theory?", by four nonexistent researchers from four nonexistent departments. One might also note that our own "J. Hering" is cited for a paper on "Stoichiometric estimations of palaeomass of benthic eubacteria from fossil records", which I'm willing to bet she never wrote, considering that her research interests are in trace metal cycling and mineral weathering.

What really nailed the people who fell for this, though, is the way it perfectly repeats the usual cant of anthropogenic global-warming denialists. An editorial essay accompanies the paper, supposedly from the editors of the publishing journal Journal of Geoclimatic Studies, in which they claim that no-one else would publish the paper due to its profound implications defying the status quo, and castigate the scientific establishment as a "powerful and hostile" force inimical to the search for truth, all of which sounds familiar if you're used to reading denialists' ranting on the topic.

It's too bad the hoax was exposed so quickly -- within 24 hours -- because rather than do the honest thing (of course) most of the people who initially bought it took down their laudatory posts immediately. Rush Limbaugh couldn't, obviously, so he just imposed a speaking penalty on himself the next day on his radio show, one must assume so that he could make sure he wouldn't accidentally invoke it again. What this demonstrates most decisively, though, is the need to actually read the science behind a headline that fits your preconceptions. The crucial lesson to take away from this incident is this: if you want more scientific credibility than a creationist, check the science behind what you're citing. This paper was a perfect fantasy for the circle-jerk of global warming denialism, and too many didn't bother looking further than that.

Valerie Syverson
Co-editor (and geologist)

The California Tech

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Letters to the Editor

Why do we pay so much for housing?

MICHAEL FORTE

Last week I complained about the wasted money for the Olive Harvest. In it I mentioned the outrageous price of board for on-campus students. I would like to go further with this and talk about the outrageous price of both board and housing and how Tim Chang enjoys squandering our money.

So again, on-campus students pay $1790 per term or about $600 dollars a month since they count Christmas and breaks for housing. They also pay the $1389 per term for board which comes out to about $25 dollars per day or about $540 per month plus the cost of food on the weekends, and for the sake of argument let us say that the average person spends about $5 per day on the weekend. So that comes out to another $40. Rounded out the average on-campus student is then paying $1200 dollars a month for a tiny double, communal bathroom, and one kitchen for every 30 people.

If you lived off campus, you would probably never spend more than $10 a day on food unless you ate steak for every meal. This would mean you spend $300 per month on food. So a financially comparable situation would put you in an apartment that costs $900 per month. Just a quick look at apartments around Tech shows that a nice studio nearby would run you $800, a two bedroom apartment split between two people would cost you around $700. If you want to live in a comparable living situation to that on campus, the two bedroom with four people would run you about $350 (not $900).

Housing argues that it has competitively priced housing, but when everything is taken into consideration, it is more than double the competitive price of nearby Pasadena, which is one of the most expensive places to rent in the world. So next time you talk to Tim Chang, tell him to stop stealing your money and spending $10k on a party no one asked for.

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

Letters to the Editor

Scientific publishing in need of a fix soon

Web should make research accessible, but at the price of peer review?

MARK MONTAGUE

Scientific publishing and peer review are at a crossroads-- academia, business, and public policy are clashing as they adapt to modern media technology while preserving the time-honored traditions of validating and disseminating research results in journals. This week Congress is contributing to a shake up by requiring free public access (in PubMed Central) to all research funded by the National Institutes of Health within a year of its initial publication.

While this specific bill will have a direct impact on the many researchers at Caltech who receive NIH funding, there are larger questions--which a recent panel and online forums at Caltech have discussed--of what the future of scientific publishing should look like. While some of this is the natural adaptation of new media, a great deal of it is driven by increasing awareness of serious problems.

The fundamental cost of getting the research results of one scientist to the appropriate academic peers has fallen dramatically. In many regards, the exorbitant costs of journals are no longer justified by needs, but are maintained only by tradition and a strategic hoarding of copyrights by the publishing companies to create an artificial economy of scarcity. The journals may provide editorial and archival contributions, but those are not really tied to the business model at all.

Publishers do provide an important, and perhaps even vital, contribution to the process of science—they coordinate peer review. There are certainly those who argue that this alone is worth supporting the current model, because the ability of academia to produce validated scientific results depends on it. In some ways, there is no clear answer: the conservative "stick with what works" approach is often prudent, but the progressive "embrace new technologies and ideas" attitude is also part of the tradition of researchers.

The current trend is not stable, though. Academic publishing is a lucrative business, and the numbers of journals and their total costs to universities is on the rise. Some figures suggest that the increasing price of journal subscriptions for universities is unsustainable at the current rate of increase. Also, the proliferation of more and more journals may be unworkable for other reasons, such as insufficient numbers of qualified reviewers and inability of researchers to keep up with the vast quantities of papers related to their fields. This is compounded by researchers having a need to pump up their curricula vitae with publications, often emphasizing quantity over quality because in many cases this is how they are judged for employment, tenure, or grant evaluation. This leads to an explosion of journal articles that are costly to review, which fewer people are reading but more universities must subscribe to in support of their researchers.

The bottom line is that the scientific publishing industry, despite claims by lobbyists that the status quo is vital to the scientific endeavor, is actually on an unsustainable course of maintaining the lucrative profit model of a bygone era at the expense of the researchers and funding agencies that it originally came into being to serve.

Although some radical solutions might lead to growing pains, the present state of the industry is rather like the "Sorcerer's Apprentice" animation in Fantasia: the tools designed to support science have developed a life of their own, and are now draining the system that they were created to support by becoming a self-perpetuating industry that is moving closer to a collapse and further from enabling scientific progress.

Mark Montague B.S. '93 is volunteer staff in computer science.

The next panel discussion in the series "What's Wrong with Scientific Publishing, and How do We Fix It?" will be November 28th at Caltech. Jasna Markovac, former Senior Vice President at Elsevier, will be providing an insider's view of scientific publishing.

For more about the legislation and scientific publishing, please visit
www.gg.caltech.edu/~monty/scientific_publishing.html

‘Curious’ good for the public, but uninformative for undergrads

SARAH MARZEN

It’s curious how little I learned about Caltech research after watching two hours of Curious, a documentary airing on PBS this Thursday. Granted, this documentary is meant for public consumption, which means that the finer details of the research have about as much chance of appearing in the documentary as do ice cubes in Hell. Still, it would be nice to know generally what Nate Lewis was doing to advance the science of solar cells, besides talking about them.

Expertly interweaving human drama with science of Mark Davis’ cancer research

I already knew about catalysts, but I still have no idea what Nate Lewis recently discovered.

Don’t get me wrong—the documentary isn’t entirely a bunch of middle school-level lectures masquerading as inside looks at Caltech research. The portion of the documentary that featured Chemical Engineering Professor Mark Davis’ first clinical trial for his cancer drug was compelling. The background story was comprehensive, and the producers highlighted the human drama without turning Davis’ story into a syrupy Hallmark video. This episode made both me and my roommate excited about the future of cancer research, which I think is what Curious should strive to do for all the subjects that it covers.

The enthusiasm of the professors for their research came across loud and clear, but Curious didn’t always do a great job of showing why. However, I can’t reasonably place all the blame on the producers. A large portion of each episode had to be devoted to explanations of basic science, e.g., defining a catalyst. Understanding most research breakthroughs requires relatively specialized knowledge that would take several hours to explain comprehensibly to a “layperson”.

I wonder how different this documentary would be had it been geared at Caltech undergraduates.

Sarah Marzen is a staff writer for the California Tech

Curious, the 2-hr Caltech documentary, will be shown at Ramo Auditorium from 12-1 PM on November 15. It will debut in LA on KCET later that night from 9-11 PM.

Letters to the Editor

Admissions taking student suggestions seriously

RICK BISHOFF
MELANY HUNT

We wanted to respond briefly to thoughtful editorial “Hungry for a larger slice of the pie” in the October 1st issue of the Tech. On many of the issues raised we couldn’t agree more. Caltech is certainly “the world’s best school for science and math, bar none.” The Admissions Staff and many students involved with recruiting undergraduates to Caltech work very hard to convey this message to prospective students throughout the year.

Caltech is always looking for new ways to identify and enroll the most talented students. Because of major technological enhancements in the Admissions Office in the past year, we are much better equipped to track students’ achievements and correspond with them appropriately. Because of these enhancements, we now have a staff member assigned the responsibility of coordinating the identification of students whenever possible in competitions and research programs to be sure that they are aware of the opportunities at Caltech. By the time this letter is printed the Siemens Semi-finalists and Regional Finalists will have been named. This year, for the first time, students will receive a congratulatory letter encouraging them to consider Caltech. Many of them will also have the opportunity to hear from Caltech Alumni and current Caltech students. We plan to extend this approach to other competitions and research programs in the year ahead.

The letter also suggested the establishment of a high school research program for high school seniors. As noted in the article, Caltech did participate in the Research Science Institute (RSI) during the summer of 2004. After that summer, the program was not continued at Caltech because of the cost per student and other issues associated with the operation of the program. Although the RSI program may not have been the right fit for Caltech, we will continue to explore ways to reach talented high school students interested in science. On November 8-10, Caltech will be hosting the regional Siemens competition, which will bring 16 outstanding high school seniors to campus.

The Admissions Office would be very happy to work with the student Prefrosh Weekend Committee on new strategies for matching prospective students with hosts. We do hold a reception for Merit Scholarship winners and current Caltech students who have been winners of Merit Scholarships. We would like very much to explore ways that we might better match prospective students and Caltech students who share similar interests.

In March of this past year, President Chameau and Acting Vice-President of Student Affairs John Hall established two committees to look at the undergraduate admissions process, and to look at the student experience. These committees are just completing their work and have made extensive recommendations about changes to enhance the educational and student life experiences for undergraduates. We hope that these recommendations will also help to make Caltech more attractive to prospective students. Caltech needs to continue to compete for the best high school students in the world. We appreciate your input and assistance. Any student who is interested in volunteering to help recruit students or who has recruitment ideas should feel free to send Rick an email at rbisch@admissions.caltech.edu.

Rick Bishoff, Director of Undergraduate Admissions

Melany Hunt, Vice Provost and Professor of Mechanical Engineering

An alum also headed east for change

BY CRAIG MONTUORI

I’ve spent the last three weeks talking about the trip to the East Coast, based off of a 1967 report titled “Reflections on Several Worlds.” Why did this trip happen? According to a memoir titled “Confessions of a Genial Abbot” by Professor Robert A. Huttenback, the MOSH at the time, the purpose was to try and keep up with student interest in improving the school and the educational process. Dr. Huttenback was trying to keep up with one student in particular, Joe Rhodes, Class of ’69.

Joe came to Caltech in the fall of 1965, where he rotated into Blacker. In February 1966, as a freshman, he was elected Social Director. He also was one of the Coffeehouse Committee Chairs when the first Caltech Coffeehouse was started. The next year, the student body voted to change the ASCIT bylaws to allow Joe to run for President as a sophomore, and he won in a landslide. The next month, on April 19, 1967, Joe called a Corporation Meeting – the focus of this article.

Here’s what the ASCIT bylaws say about Corporation Meetings:

“SECTION 1: Corporation Meetings may be called at any time by the President or the Board of Directors. The Secretary shall post notice of the Meeting in each undergraduate House at least seven (7) days prior to the Meeting. Twenty-five percent of the membership shall constitute a quorum.”

Corporation meetings provide a chance for all students to sit down and discuss a major issue, similar to the Town Hall meeting that was called by the IHC during the Seven-Day Board debacle nearly two years ago. No Corporation meetings have been called in recent memory, but they remain a powerful tool to present the voice of the student body. They can be reactive, like the Seven-Day Board meeting was, or proactive, like the 1967 meeting was.

Prior to the 1967 meeting, a special ‘extra’ of the Tech was published, announcing the Corporation meeting. The ‘extra’ was a single page that was a tad wider than a standard 8.5” x 11” piece of paper. All Faculty members and Graduate students were invited, and about 65% of the student body showed up, though it is unclear how many non-undergrads attended.

At the meeting, four proposals were made by ASCIT to be discussed: (1) include student members on faculty committees, (2) reduce the number of required courses/minimum load for graduation and ease the option requirements allowing for more freedom of education, (3) appoint a non-voting, faculty-student liaison member on the Board of Trustees to “express the views of the faculty and students to the Trustees,” and (4) formation of what I think became the ARC, which examines “various facets of the academic program.” All classes after 4 pm were suspended with the approval of President Lee DuBridge and Interhouse sports for the day were rescheduled.

The ‘Tech Extra!’ ended with: “According to ASCIT President Joe Rhodes, the average Caltech student is untrusted [sic]. If said student were given positions of responsibility, he would find himself more than equal to the task. This is what these proposals seek to do.”

All proposals, including two from the floor, passed with the approval of at least 75% of those attending, some up to 85%, barring the dissolving of options, which came in at 46%. The important floor proposal (the other was regarding a Communist speaker at Redlands) was that “The Associated Students express their approbation of the use of general funds in addition to current sources of income to support and refurbish the student Houses.”

Around this time, the Houses were falling into a state of disrepair, and students, especially student leaders, were moving to off-campus housing, which provided better quality at similar prices. This state was another prime factor that caused Dr. Huttenback to get money from the Provost, Dr. Bob Bacher, to fund the student trip to the East Coast

Following the Corporation meeting, letters were sent to the Faculty Chair and the Chair of the Trustees by Joe Rhodes. Faculty members were reportedly “happy with student interest in the present and future development of Caltech.” Over the next year, students began sitting on faculty committees, and today it would be an extraordinary occurrence for a major decision to be made without student input.

A few weeks later, on April 28th, President DuBridge met with the ASCIT BoD to discuss the proposals voted on by the student body at the Corporation meeting, and so did the Student-Faculty Relations Committee, previously the only faculty committee with student representation, dating back to at least the 1930s. Concurrently, the faculty board voted to support several of the students’ proposals, with faculty opinion ranging from “the enthusiastic to the openly skeptical.”

Following this academic reform movement pushed for by Joe, he departed for his own tour of the East Coast, visiting MIT, Harvard, Barnard, Columbia, Swarthmore, the University of Chicago, and Antioch. I’ll talk about that tour and the project that Joe announced for Caltech at the end of the 1966-67 school year in my next column.

Programmers move on to nationals

BY NATALYA KOSTANDOVA

Caltech's tradition of winning the regional level of the ACM International Collegiate Programming Contest lives on. On Saturday, Caltech team consisting of Eui Woong Lee, Seung Woo Shin, and Ben Zax placed first above 62 other competitors, earning a spot in the world finals of the competition.

The team will travel to Alberta, Canada, to compete against teams from all parts of the world on April 6-10, 2008.

Zax said, "It isn't quite as cool as Japan [where the finals were held last year], but it should be very interesting, because there will be a lot of really nerdy people there who will kick our asses."

At the regionals, held in Riverside Community College, each of participating teams was allocated a computer and had five hours to solve seven problems. Yeo, Lee, and Zax solved six of the seven problems in the shortest time, which allowed them to move on to the international level.

Although the team left Caltech for a day, some parts of its experience did not change much with change in location. "At one point I noticed that I had left Caltech, gone to RCC, and somehow ended up in a group of 200 people with a worse ratio than my class," said Zax.

The Southern California regional competition is open to colleges from Southern California and Southern Nevada and is used as one of the qualifiers for the world contest. Out of 9720 teams registered for the competition, only 90 are selected to move on to compete in Canada. This is the sixth year in a row that Caltech made it to the finals.

Fashion meets brains on runway

'Geek 2 Chic' to show Techers how to dress for success in the real world

BY EVELYN CHOU

Heels will pound the runway at Geek to Chic, a professional presence event that will be held this Wednesday in Dabney Lounge and Gardens. Hosted by the Caltech Career Development Center, Caltech Alumni Association, and JC Penney, the event will last from 11am to 1:30pm and feature a professional attire runway show, as well as hair and makeup demonstrations and suit measurements for men and women.

The event is expected to attract both the fashion-savvy and those in dire need of revamping, although the primary purpose of the event is to leave all participants with a fresh outlook on style and introduce ways to look professional in various situations.

Coordinators Yvonne Banzali and Jonie Watanabe Tsuji from the Caltech Career Development Center say that the event will provide a much-needed service to many Caltech students.

"Recruiters take all of thirty seconds to size you up," says Watanabe Tsuji. "So it's important to have a really good handshake, to be confident, have a nice smile when you shake their hand and that's why the dress is so important, because of that thirty second first impression."

Geek 2 Chic
Date: Wednesday, Nov 14
Time: 11:30-1:30 PM
Where: Dabney Lounge and Gardens

Despite, or perhaps because of, the Caltech culture's heavy emphasis on academic success, Watanabe Tsuji says many students neglect their appearance or simply lack the means or resources to develop their professional presence for situations such as interviews or in work environments. Even if some students are lucky enough to work in an environment where the dress code is casual every day, many companies adhere to a dress code that is usually at least somewhat professional, and the "dressing-down" culture that is reinforced at Caltech is instead a hindrance in the workplace.

Banzali and Watanabe Tsuji hope that the event will provide important style tips for students in professional situations, where the principal goal is to make a good impression.

The fashion show, held from noon to 1 pm, will feature a total of 21 volunteer models ranging from undergraduates to post-docs and faculty. They will be presenting professional wear in several categories, including Interview, Weekday, Casual Friday, and Evening wear.

The event will also feature games and contests, prizes, gift bags, food, and music sponsored by the Caltech DJ Club.

Says Banzali about the event's predicted success, "I think in any case, in terms of impact, it's going to be a great one because it's the first of its kind. There really isn't a benchmark, but we are creating one."

Wheelchair designers second in PBS show

BY JONATHAN YEUNG

The road bike to wheelchair brainchild of five Caltech students placed second in the PBS Project Enterprise Contest.

The team, comprised of alumni Rudy Roy and Ben Sexton, and seniors Nathan Chan, Tom Oliver, and Charlie Piatt, were one of four finalists in the competition from a field of over a hundred. The winner, determined last week by internet voting, was a group from Corona, California that distributes donated building materials for non-profit organizations.

Their non-profit, Intelligent Mobility International (IMI), works to turn cheap bikes into wheelchairs for the disabled in Guatemala. After the two founded the company last year, Chan, Oliver, and Piatt joined the team to help with funding, wheelchair design, marketing research, product testing, and distribution.

Despite not winning the PBS competition, which would have given IMI publicity through PBS' NOW broadcasts, the team says they're moving forward. The team has just developed a new prototype that includes brakes and foot rests. Furthermore, they are about to test their wheelchair prototype on humans and are awaiting approval by the Caltech ethics committee. IMI is aiming to have wheelchairs ready for Guatemalans by February of next year.

ASCIT minutes: 11/06/07

Midnight donuts are next week

Present: Chris Gonzales, Mike Grinolds, Andrea Dubin, Mike Forte, Patrick Herring, Zack Higbee, Daryl Coleman, Ekta Bhojwani, Dan Lo

Absent: Mike Woods (late)

*Interhouse

-People should start building!! Only 10 days left!

*Social team

-Ekta says that they are trying to plan a concert. They need $5000 to fund it, but MHF turned them down since nothing (such as the date, who's coming, etc.) is finalized. We could try to apply again. We'll also talk to Tom Mannion about it.

*Publications

-Marissa will be talking to us next week about the Tech.

-The Big T is having a meeting on Monday.

-Little T is working on it.

-Gonzo is incompetent. Again.

*Donuts

-Midnight donuts will be sometime next week. Friday night social team is doing something for the houses for building interhouse, so it will probably be on Thursday

*Honor keys

-We have to figure out who decides who gets them and if we want them to be gold plated or gold filled. People from every class will be eligible to get a key. $15 a key is about the maximum we want to spend.

-Gonzo suggests that FDaL and UDaL will give us a list of who gets points. Getting Daryl a sandwich will be +10. Or we could just appoint a person to go around following people and recording points. A better idea: people can send in Email nominations and a committee will decide who will get one.

-Gonzo doesn't seem to care. We think Gonzo only cares because he knows that he automatically gets a key. Gonzo claims that if he wanted a key, he'd just go out and buy a key. We think he's lying.

-There is some discussion on whether we want to have a ceremony to present the keys. Staff awards are just announced over email and then given out without a ceremony. We might do the same for the keys to avoid the cost.

-Craig wants us to put aside $1700 for this. We think this is too much. $15 a key * 15 people is about $225.

-Daryl suggests that the keys should open a box, and that when you open it and it tells you that you're awesome.

-Notes after the meeting – Mike Woods says there's tooling (i.e.-one-time set up) costs… Plus it'd be nice if we were willing to spend more than $15 / key…

Andrea Dubin
ASCIT Secretary

Meet Anneila Sargent

New VP for student affairs

INTERVIEW BY MARISSA CEVALLOS

Professor Anneila Sargent, astronomy researcher at Caltech, was named the new vice president for student affairs last week. The former president of the American Astronomical Society says she's excited to delve back into student culture at Caltech—after all, the Scottish astronomer became a member of the Caltech community 40 years ago as a graduate student.

COURTESY OF CALTECH TODAY

MC: Here's the big question: will you still get to work on your research?

AS: I hope I will! I do a lot vicariously through students and post-docs. I just finished CARMA. There's a lot I'd like to see get done. Jean-Lou Chameau said I'd still have 50% of my time for research, which means I'll get to do research in my spare time.

For me, the biggest challenge is that I have to teach next quarter. I want to teach one quarter per year, at least I'm going to try. Everything is going to be an experiment.

MC: How did you find out you were being considered for Vice President for Student Affairs?

AS: I didn't even know I got interviewed. It was hilarious. My friend Melanie Hunt asked if I could talk to a committee that wanted my advice on teaching. I thought I was just giving my opinion, and the whole thing was very relaxed. Then it was over, and I didn't think about it again. I met with a friend later who asked me if I had been interviewed for the job. I said 'Of course not,' but he said 'Are you sure? Could it have been 5% an interview?'

Then Jean-Lou called me. I was startled. I thought about it for a while, about what my other options would be. But I felt most energized by this. You know how sometimes you think 'Oh no, I have to do this, and I have to get this done'? But this was something I got really excited about. It didn't take me long to become sure.

I feel like I have a lot to learn. I'll have to read stacks of papers. I feel like I really need to do a good job.

I've found students at other school are happier, and I want to know why. I spoke at frosh camp a few years ago, just after September 11, and I thought 'God, they're asking better questions than grad students!' But then something happens as they go through Caltech, and they lose something, and I think that's terrible. When I left [The University of] Edinburgh, I thought the best part of my life was over. When students leave Caltech, I want them to think it was tough but it was worth it.

Honestly, I really worry about it. Students here take too many courses. I think there's a culture of seeing how hard you can push yourself. When I was young, undergrads did research here. I had someone tell me that he wouldn't have liked Caltech if he hadn't been doing research.

MC: What are some of your ideas about improving the student life for Caltech undergrads?

AS: The fact that a faculty committee has considered redoing core is fundamental. I'd also like to understand the culture of taking too many courses. But doing research is better for the real world in general, even if you don't stay in academia.

When women first entered Caltech, the MOSH [Master of Student Housing] reimbursed men who would take a girl off-campus on a date. We need to be a little creative too.

I think Caltech has become less personal, but that's easily remedied. My job is listening, I have to find out the concerns. I mean, there was this thing about 7-day board two years ago. I would hate to think we had to have a big town hall meeting about it. We ought to be able to have that dialogue before it becomes a big issue. I have to face up to things when I screwed up, and students should have to face up when they screw up too.

MC: What can you do to make student life easier?

AS: We just have to be more creative. There's always something falling asleep in class, more than in any other school. It's really hard on the students. Is it because the problem sets are unreasonable? I just get the feeling that I was offered the job because I can do something about it.

MC: What was it like being an undergrad in Scotland?

AS: I worked really hard in junior high and high school. What else could we do with our time? We were all expected to be working. I didn't have time for teenage angst. My life would not be worth living if I didn't do my homework!

Of course, I'm this good girl going off to college, so I just had a great time. I didn't work very hard. But in my third year, my adviser said to me 'In principle, you can get into the physics honors program, but in practice, you better be in the top of your class or you're not getting in.' It was really hard to buckle down. Remember, this is when everyone's grades were posted, numbers and all, on the professor's door. Well I just remember everyone crowding around the door at the end of the year, and I'd finished third in the class. One guy gave me a mean look and said "We'll see if I ever help you in lab again."

MC: Anything else?

AS: I'm hoping this will be an adventure.

CSPAN drops by campus

CSPAN, FROM PAGE 1

news. There are no commercials and the public can "directly access elected officials, other decision-makers, and journalists through viewer-call in programs."

"We hope to learn what the public thinks about the general election in terms of which candidates and which issues are important to them," says Stuart.

C-SPAN was founded by the Charter Communications cable company. There are currently three different channels: C-SPAN 1 covers the House of Representatives; C-SPAN 2 covers the Senate, and C-SPAN 3 presents committee hearings as well as historical documentaries.

Caltech partnered with nano leader last week

NANO, FROM PAGE 1

day replace LCD and plasma technology, and many other emerging technologies.

Together, they think they can do more. Although LETI partners with many groups around the world – CSEM and Albany Nanotech, for example – they find that after proof of concept has been explored sufficiently, many of the labs they work with are not particularly interested in scaling up. But not with Caltech. The goal of the new partnership is to develop very large scale nanosystems: systems of hundreds of nanomachines that can work toward some useful end. "We dream of tools in nanotechnology that can measure things down to single molecules and reverse engineer the processes of the cell for an understanding of systems biology," says Dr Michael Roukes, a professor of applied physics at Caltech and the founding director of KNI. To get there, the NanoVLSI partnership plans to try and transform current nanotechnology prototypes – like the NEMS nose – into robust and complex sensing systems that can make diagnosing cancer as simple as breathing into a tube.

More information can be found at www.nanovlsi.caltech.edu

Construction notice

On Tuesday, November 13, fences will be going up around Caltech for upcoming construction of new buildings.
First will be between Beckman Lab and Baxter Hall upto Beckman Mall to facilitate the relocation of a large storm drain from the site of the soon-to-be-built Schlinger Laboratory for Chemistry and Chemical Engineering (CCE) building. Second will be the closure of Moore Lab parking lot and surrounding areas around it in preparation for the construction of Annenberg Center for Information Science and Technology (IST).
For more information visit their website: newbuildings.caltech.edu or email them at: newbuildings@caltech.edu

ssel

Students cash in on social science experiments

BY GLORIA TRAN

When Caltech students find themselves a little short on cash, some may turn to part-time jobs around the area, tutoring or even playing online poker. However, a fast-rising trend is getting paid—and paid well—for playing guinea pig in social experiments on campus, from bargaining in faux auctions to making moral decisions under intense magnetic fields.

The Social Science Experimental Laboratory (SSEL) conducts experiments for research in areas ranging from psychology to political science by analyzing how students react individually in certain social situations. fMRI experiments analyze brain activity while subjects perform various tasks are conducted at the Caltech Brain Imaging Center (CBIC).

Both SSELs and fMRIs last from 1 to 2 hours and pay from $15 to $50 an hour. Subjects must be 18 or older to participate in fMRI experiments. While fMRIs are conducted at the Broad Center, while SSELs are conducted at individual computer terminals at the lab or from outside the lab through an interactive online session. Usually, for the first 15 minutes, students are provided instructions about the experiment.

MRI (or magnetic resonance imaging) is a noninvasive procedure that takes snapshots of neural activity to be monitored during the decision-making process. MRI procedures are safe, though they involve the use of extremely powerful magnets. A criterion for participation is that students may not have any metal in or on their bodies.

According to Dr. Ralph Lee, a researcher at the CBIC, Caltech professors and graduate students conduct various experiments and come up with their own criteria for test subjects.

Senior Joe Donovan ran a neuroeconomics experiment this summer examining the brain areas involved in "charitable decision-making". Participants made two different choices: whether or not they would donate money, and if given a list of numbers, how much they would donate. "At least half of the test subjects were undergraduates and the average payoff was $90-100 for an hour and a half of work," says Donovan.

While many students are only beginning to take advantage of this opportunity to earn some money, others have been regularly participating in experiments each week. "[I volunteer] as often as possible, usually 2 or 3 times a week," says sophomore Robert Kaspar, a "regular" who has made $1300 since spring of this year. "I usually make between $50 and $100 per week."

"I don't ever withdraw cash. I live off of SSEL earnings. I deposit any excess, since I'm going to have a lot of debt when I graduate," says Kaspar.

"Usually, the experiments are overbooked, so if you don't arrive early you possibly won't get a spot. The upshot is that you still receive a nominal show-up fee," says Kaspar.

Junior Seth Hendrickson earned almost $2000 during freshman year alone, participating in a couple of experiments per week. "It's a good way to make a little cash whenever you have free time. Experiments are usually at very convenient times as well," says Hendrickson.

Perhaps the most lucrative experiments were the simulation spectrum auctions conducted by the Federal Communications Commission (FCC) known as "FCC auctions" on campus. Congress granted the FCC authority to auction radio licenses [when?]. Caltech researcher John O. Ledyard and his colleagues analyzed various auction designs by simulating these auctions with Caltech participants representing the interests of citizens, companies (i.e. Google and other telecom companies) and the US government.

"Students bid on package A and package B, sometimes winning both. They earn money based on how well they did during the auction or experiment," says junior Matt Grau, who earned $700 last year participating in these FCC auctions. "I did work study for a while but the jobs are boring. [SSELs] are kind of fun because they're like games and you can do it as frequently or infrequently as you want," adds Grau.

Sophomore Victor Li earned about $400 last year participating in SSEL experiments such as the FCC auctions. "If you're really good at auction experiments, you can make up to $100 in an hour," says Li.

People may begin participating in experiments through social science classes or by word of mouth. Volunteers can obtain more information online at the centers' webpages.

Victor Li
$400 in one year
"You can make up to $100 in an hour"

Robert Kaspar
$1300 since spring
"I make between $50 and $100 per week"

Seth Hendrickson
$2000 frosh year
"It's a good way to make a little cash"

How not to be seen in Japan

NATALYA KOSTANDOVA

If you prefer to protect yourself from rapists, robbers, or bullies in non-standard ways, you have much to look forward to. Thanks to Aya Tsukioka, Japanese experimental fashion designer, you can ward off attackers by quickly disguising yourself as a vending machine. The four-side cover, with all elements of a real machine printed on its fabric, folds out from the flap on a skirt or kimono, and is Tsukioka's response to Japan's growing anxiety about safety.

In addition to the vending machine, you can also purchase a purse that unfolds to look like a sewer cover as well as a backpack for your child/brother/sister/nephew/niece/some-other-random-kid that transforms the child into a fire extinguisher with legs.

It is true that camouflaging is an ancient form of defense, used by various representatives of the animal kingdom since the beginning of time (caterpillars of swallowtails take form resemblant of bird droppings to avoid being eaten, the praying mantis resembles a leafy twig, and army people have their own sort of camouflage to hide them from the enemy). A human vending machine (from now on referred to as HVM due to my personal laziness and desire to save space) with tennis shoes sticking out from fabric does not, however, have the benefits of the aforementioned examples.

For one, although vending machines appear to be more common in Japan than McDonalds's in America, here in the States using this particular disguise to blend in with environment would be slightly difficult. Seeing a random machine in a middle of the road would appear to be rather sketchy, to say the least. Especially one with tennis shoes. Or sandals. Or even barefoot. It doesn't really matter.

In case of being discovered, the human soda dispenser does not have adequate defense mechanisms, like the natural users of camouflage. The praying mantis pinch, bite, and slash their opponents, and honestly, they look like aliens, which should automatically astound predators and provoke respect. While pinching and biting is available to the person hiding behind the fabric, they are unlikely to be effective. If the person happens to look like an alien, that's just unfortunate.

i no longer am afraid-
Perpetrators I'll evade.
Evil dude, who is so mean,
i am just
a coke machine.

As for the swallowtail caterpillar, their disguise is the best defense. After all, anybody willing to eat their droppings will be unlikely to stop at anything else. It's true that not many people would be willing to eat a full size vending machine, but that still doesn't seem to be a very effective defense.

Army people, while usually less successful at blending in than swallowtails and mantis, have a slightly stronger defense, usually in shape of firearms. If the HVM happens to have a bazooka hidden under the four-sided screen, then he/she shouldn't be hiding in the first place.

Even if the HMV succeeds in tricking the perpetrator to believe that it is, in fact, a vending machine, the outcome of the situation still does not seem very promising. Not to mention the fact that anybody who fails to notice the shoes, the fabric, and breathing coming from the machine is probably going to be too sleep-deprived, stoned, or wasted to be harmful in a first place.

The point is, vending machines don't have very nice lives in the States. Even the real ones. From personal experience, unless the poor things work perfectly, disposing a wonderfully cool, refreshing can of soda and a correct amount of change, they are quite likely to receive not only a significant amounts of swearing, but a few kicks as well. Seeing that the vending machine skirts do not come with actual cans of soda stored in them, in the event that the possible perpetrator decides to have himself a can of Coke, the outlook for the victim doesn't look so good.

As for the backpack transforming into a fire extinguisher, let's just hope that its owner is never used for the object he or she is pretending to be.

Quantize me

BY MARK EICHENLAUB

There was a time when Caltech was good at sports. It was last night. In my dreams. But it's real, too, because I was dreaming of 1954: the year the Caltech Men's Basketball team won the conference championship. I learned about the long and surprisingly-rich history of Caltech Athletics, and basketball especially, watching Quantum Hoops, the documentary of Caltech Men's Basketball team's 2006 season, playing this week at Laemmle One Colorado Theatre.

Caltech athletes, I learned, have been Olympians, including a silver-medalist pole vaulter in 1924, and world record holders. They have been champions, All-Americans, and award winners. Just not so much, recently.

The last time the Caltech Men's basketball team had won against a Division III opponent came during the time of all-conference center 6'10" Ben Turk, a talented player who accomplished the feat ten years ago. Since then (or at least until the time of the movie), nothing. That fated year, however, senior Jordan Carlson came one vote short of making the all-conference first team, seemingly a sign of better things to come.

Quantum Hoops, though, doesn't highlight Caltech just because they almost always end up on the bottom side of the scoring. Instead, it portrays the interplay of intellectual and physical pursuits, and shows their deepest connection: that they are both driven by passion.

No one displays passion more ardently than Roy Dow, Caltech's head basketball coach for six years. Why would Dow continue to work at a program like Caltech, where he rarely gets a player who can dunk anything more than an Oreo? He simply doesn't see a win-loss record as the bottom line. And neither do his players.

Jordan Carlson, leading scorer and star of the 2006 team, had never played on a basketball team before coming to Caltech. Neither had most of his teammates. The team had more valedictorians than players with high school varsity experience.

Despite everything working against them – limited practice time, the near-impossibility of recruiting, and the weight of years of losses stacked up behind them, the Caltech men nearly pulled off a miracle that year. In their final home game, they lost to Whittier by just two points, in overtime.

But if that miracle was a near miss, consider another minor miracle – all the team's seniors that year graduated with honors. From Caltech.

A theme emerges over the course of the history traced out by Quantum Hoops. Players at Caltech, both talented and less so, took sporting as a supplement to their other endeavors, not a replacement. Stars passed on scholarships to top schools to study in the academic environment of Caltech. Our history is full of players who excelled on the court, and then went on to distinguished careers as scientists, engineers, and entrepreneurs. On and off the court, they drive forward.

And despite their losing record, Caltech is a team on the rise. The women's team won two conference games last year – their first two ever. For the men, victory in the NCAA came at last in early 2007, when they defeated Bard College by the score of 81-52. At the time, coach Dow told me something along the lines of someone having to win when two bad teams play each other. But it's undeniable that Caltech's competitive level has rebounded since its darkest days.

The next hurdle for the Dribbling Beavers is to win a SCIAC conference game. I calculate they have a 24% chance to do it in 2008, based on their 14-game conference schedule, and assuming their point spread (50+/-22 points) from last season holds steady and is normally distributed. If Caltech can take that spread down a mere 5 points, their odds of achieving at least a single conference victory shoot to 45%. 10 points better than last year and it's three in four they will snatch a win.

There's appeal in going to a movie (a real one, in theaters) and being able to point up at the screen saying "I know that guy! He's good at math!" And there must be appeal for the general public, too. Last week, Quantum Hoops outsold "Bee Movie" and other major Hollywood productions at One Colorado.

Beyond the surface enthusiasm you might feel for seeing your friends on the big screen, Quantum Hoops is great because it is about us. The men featured in the film epitomize the ideal of the scholar-athlete. They play not for the reward of it, or for recognition and honors. They play because play is itself worth pursuing. And they play better than you think.

Upcoming Games

Friday, 11/16
2:00PM - Women's Basketball vs Pacific Union College

Saturday, 11/17
All-Day - M/W Fencing @ UC San Diego
4:00PM - Women's Bball vs. San Diego Christian College
8:00PM - Men's Basketball vs. La Sierra University

Sports Briefs

Men's Soccer

Caltech's Nathan Chan was named to the 2007 All-SCIAC, 2nd Team. Chan, a senior team captain and midfielder is from Westwood High School in Austin, Texas is a double major at Caltech. In addition to soccer, Nathan is a member of Engineers for a Sustainable World and the Caltech Sustainability Council.

Men's Water Polo

The Caltech men's waterpolo team ended its season this weekend at the SCIAC tournament with three losses to Redlands, Occidental and Whittier with scores of 19-5, 17-2 and 15-6, respectively.
Despite the 14-point differential, the team's best performance came against Redlands, which was ranked 19th nationally.

Cross Country

Five members of the men's and women's teams ran in the Division III west regionals in Oregon on Saturday.
Senior Matt Kiesz led the men's team with a time of 27:46 in the eight-kilometer course. He finished 71st. Freshman Anton Karrman followed closely in 73rd with a time of 27:48. Fellow frosh Dunatunga Sachith finished 83rd (28:42), while seniors David Rosen (28:46) and Steve Horikoshi (31:09) garnered 87th and 96th place, respectively.
Freshman Justine Chia led the women with a time of 24:56 in the six-kilometer course, good for 84th place. She was followed by senior Katherine Breeden (25:07), freshman Stephanie Wuerth (25:29), Perrin Considine (27:25) and sophomore Masha Belyi (27:40).

I Believe I Can Fly

photo by Riley Franks

Junior Herschel Mukherjee goes up for the frisbee during Sunday's disco trophy chellenge between Page and Fleming. Page won the trophy with a 15-4 victory in Ultimate Frisbee.

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	7			8				
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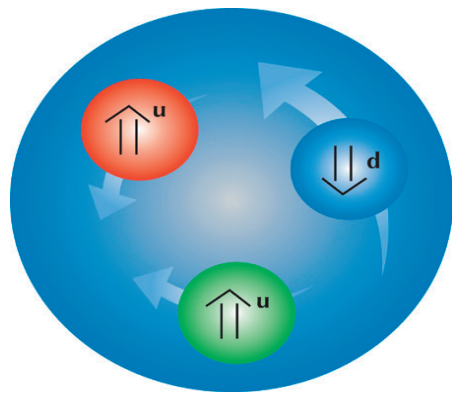
	1	9				5		

Dr. Quark



Proof by Induction that Science is better than you!

Dear Dr. Quark ,

I have been stricken with an unfortunate ailment. Despite best efforts of mine to love my work as hard as possible, I find I've become distracted, by a frosh girl. She's perfect because...she's a girl. I don't think she knows I exist, and if she did, I am afraid she will hate me because I am an orphan. What should I do?

Pining Upperclassman

It is my expert opinion, as a doctor, and more importantly, as a scientist, that you should by all means not talk to this individual. This will scare her to death, not only because you are probably very intimidating and frightening in your own right, but also because it will probably scare her to look at you. The problem is you are not a Ph1a problem set, which everyone knows frosh love because they are long and hard (or so they think). No, keep your distance. Talking to her will just let her know how socially inept you are, and even worse, how much you probably love science. I recommend the more polite and proven method of keeping your distance and conveying your affection with long glances. Remember, it is important to walk the fine line between a kitschy wink and creepy stare. Don't worry, she'll understand the intent. You might think it is a good idea to be subtle or mysterious and do something like send this girl flowers or gifts anonymously. We can do better than this. Why not go a step further and be so mysterious and so subtle as to send her nothing at all? What could be more mysterious that the absence of creepy anonymous stalker gifts? Not only will she wonder who sent her nothing, but she'll also wonder what wasn't sent to her.

This is not just good advice my friend, it is actually excellent advice. I know this because it is scientifically proven. Pierre Curie, who was a great scientist, married Marie Curie, who was a fox in addition to being an even greater scientist. As a young buck he often tried to woo her by anonymous leaving flowers and radioactive isotopes at her door, but the somewhat thick skulled Marie assumed the samples were from a scientifically interested benefactor, rather than the skinny beanstalk with wireframes that lived next door, and she performed scientific experiments on them. In the midst of one of her experiments she found that Pierre had tampered with one of her samples and left the note "Will you marry me?" embedded in her lab notebook. She was so furious with the tampering of her carefully taken data that she beat him within an inch of his life with an Erlenmeyer flask. It was only later that the two got hitched, and Pierre won the nobel prize, not only for his and his wife's outstanding contributions to science, but as a nod to his incredibly hot and scientifically minded life partner. Later Marie died from radiation poisoning from the flowers he gave her, and Pierre was so heartbroken that he got absolutely hammered and took a ride in his carriage and was crushed to death in a horrible traffic accident. Their three young children were orphaned.

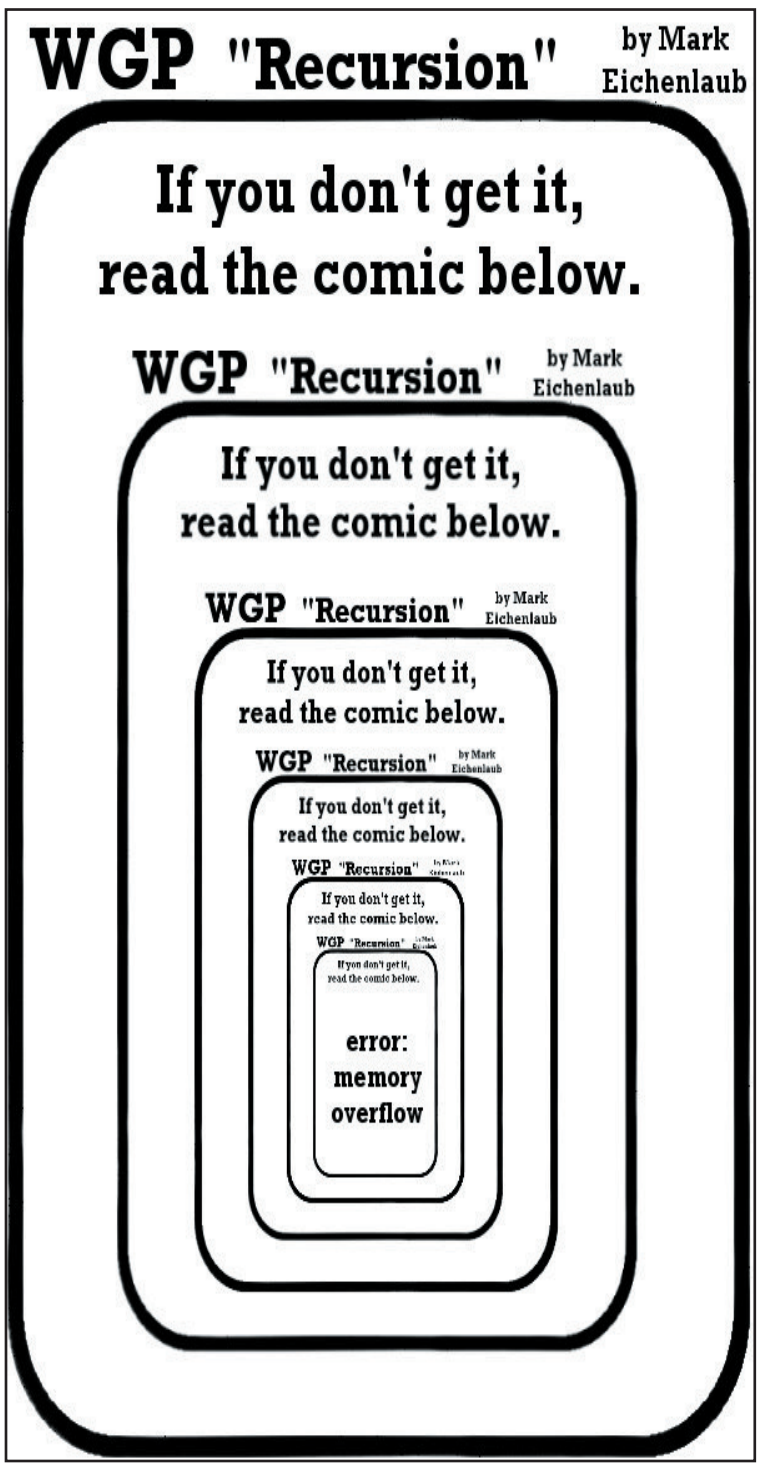
The children were sent to Max Planck's house to live. Max, being a notorious recluse, left the children to entertain themselves. The found a magical wardrobe and hid inside it during a game of hide and seek. Unfortunately the latch of the wardrobe closed, locking the children in, and they suffocated.

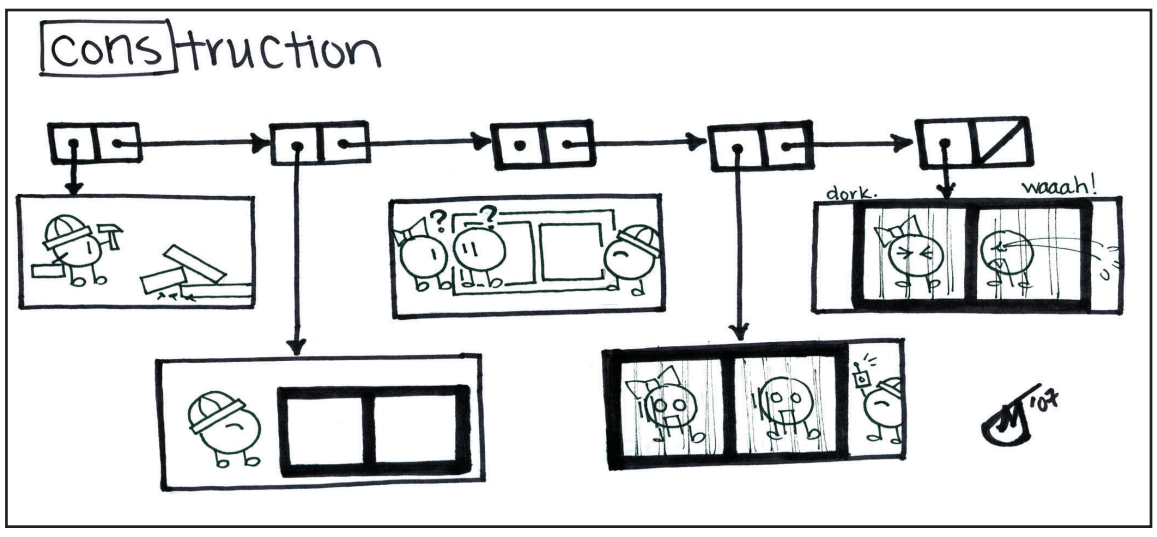
I am wary of the fact that you're an orphan. Being an orphan is a terrible thing, but that last thing you want is to have children who are also orphans due to your genetic disease. If eventual procreation is your goal, I would make sure the frosh you are interested in is not also an orphan, or your biologically disgusting offspring will likely be born as orphans too. The would have to life in an orphanage, which means you would not be able to spend as much time with them. This will make them very, very sad.

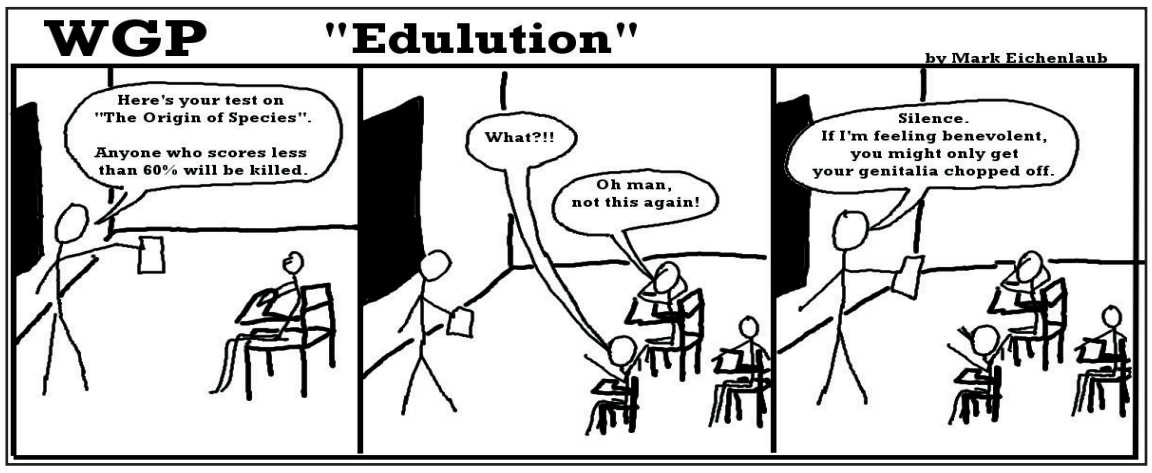
Dr. Quark taught himself integral calculus at the age of six by building it up for himself from axioms and first principles. He currently enjoys playing with blocks and throwing food. An energetic and precocious child, Quark never knew his parents, and instead was raised by the careful guardianship of Murray Gell-Mann.

You took can ask your own questions of Dr. Quark - EMAIL DRQUARK@GMAIL.COM and he will answer them,

Comics







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