

D. Korta/The California Tech

Science fiction author Michael Crichton presents his talk entitled "Do Aliens Cause Global Warming?" at Beckman Auditorium last Friday night.

Crichton Criticizes Scientific Process for Misrepresentations

By ADAM SEARS

Science has served humanity well for many generations, rising star and popular fiction writer Michael Crichton reminded a packed Beckman Auditorium as the sun went down Friday night.

Speaking as part of Caltech's Michelin Distinguished Speaker Series, Crichton asserted nevertheless that in many cases the scientific process was being hijacked by activists who grossly misrepresented the certainty of findings, often taking advantage of the media and citing popular "consensus."

"Consensus is the business of politics," he said. "In science, consensus is irrelevant." He continued, citing examples such as global warming and nuclear winter, where bad or inconclusive science was leveraged to create policy.

One topic that drew a lot of heat from the audience was the nuclear winter scare, led by prominent cosmologist Carl Sagan and another scientist in the early '80s. With the threat of war and the fear of possible nuclear attacks, no one wanted to take a soft stance on the subject. But Sagan contended that multiple warhead exchanges would launch a cloud of dust into the air, paralyzing the Earth's photosynthesis processes.

In a series of press releases, often weeks before real scientific papers were published, the two gained enormous publicity for their theories. This, Crichton said, was simply not how the scientific timeline should run. "This is how products are sold," he explained. In addition, Crichton pointed out the absurdity of an equation used to describe the total effect of nuclear winter, which

simply multiplied a large number of variables—none of which could actually be determined.

A similar formula, the Drake Equation, existed in the search for extraterrestrial life and the SETI project. According to Crichton, the Drake equation could have any value from "billions and billions" to zero, depending on personal bias. "SETI is a religion," he concluded.

He tied the title of the talk, "Do Aliens Cause Global Warming," to this particular misrepresented campaign. After detecting a falsely positive signal from aliens in 1960, the search for other worlds grew in publicity and power, but lost no credibility. Today, Crichton said, a willingness to settle for the baseless claims of SETI science has allowed other crusades, such as that against second-hand smoke, to proceed

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Army, U.S. Security Concerns Zero In on Caltech Research

By MATTHEW WALKER

In the past year, national security awareness has been heightened by the stunning events of September 11, 2001. More than ever before, the need to protect Americans from a diverse set of threats is more apparent. In the past America has been threatened by only the strongest of industrial and military powers. Today, the threat posed by the historically weak is finally, momentarily recognized—perhaps most prominently at Caltech.

Increased security precautions across the country have been adopted in an attempt to disarm any potential threat. New airport security measures prevent a repeat of the September 11 events, tighter border control keeps terrorists from successfully infiltrating the country and missile defense research hopes

to eliminate threats posed by rogue states.

As a White House statement declares, "we must be prepared to defeat our enemies' plans, using the best intelligence and proceeding with deliberation." The government appears to be leaving no possibility unexamined.

"Even our liberty-loving American people will sacrifice their freedom and their democratic principles," observed American journalist Agnes Meyer, "if their security and their very lives are threatened."

Already, protests against the unlawful arrests of thousands have broken out across the country. Accusations of torture and mistreatment of war prisoners have been rampant. Still, it is not clear how long the government will hold many detainees and their prospects of a fair trial seem to diminish by the day.

The White House has also proclaimed that "the gravest danger our Nation faces lies at the crossroads of radicalism and technology." The peril of weapons of mass destruction is too large to ignore. With rumors of "suitcase nukes" having escaped from the former Soviet Union and the threat of biological agents deepened, technology is a scary subject for many people.

The possibility of Caltech's own research being leaked to America's enemies has many people terrified. A logical security measure would increase screening of researchers and restrict access in American laboratories. The status of many prestigious research institutions as universities causes a conflict of interest. Most universities have a strict belief in the spread of knowledge, so many are reluctant to accept restrictions of any kind from the government.

Two main types of restrictions have been requested by the government of universities conducting re-

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ITS UPGRADES STUDENT WEB CONNECTIONS

ETHERNET FROM FAST TO FASTER

Internal Backbone Linking Houses Improved

By ROBERT LI

Amounting to a ten-fold Internet speed boost, Information Technology Services completed long-awaited upgrades to networks in the north and south houses and to the intra-campus backbone of Caltech's internal network.

ITS upgraded infrastructure in the seven houses from a 10-megabit-per-second shared network—roughly 1.3 megabytes per second—to a 100-Mbps, fully

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Advisory Committee Puts Health to Heart

By KAYTE FISCHER

Once a month, a group of students gathers in the SAC to discuss issues relevant to campus health and well-being. The recently founded Health Education Student Advisory Committee, also called the SAC, is a focus group designed to give feedback and ideas for potential programs to Jane Curtis, the campus health educator.

"To me, the SAC was formed to help students have an awareness of health issues and get them to eat their vegetables," said committee member Alice Lin '05.

Dr. Curtis gleans opinions on such health matters both from the committee itself and from students who stop by during drop-in counseling hours, who write on the bulletin board outside her office or who speak casually with her at various campus events.

In the Spotlight

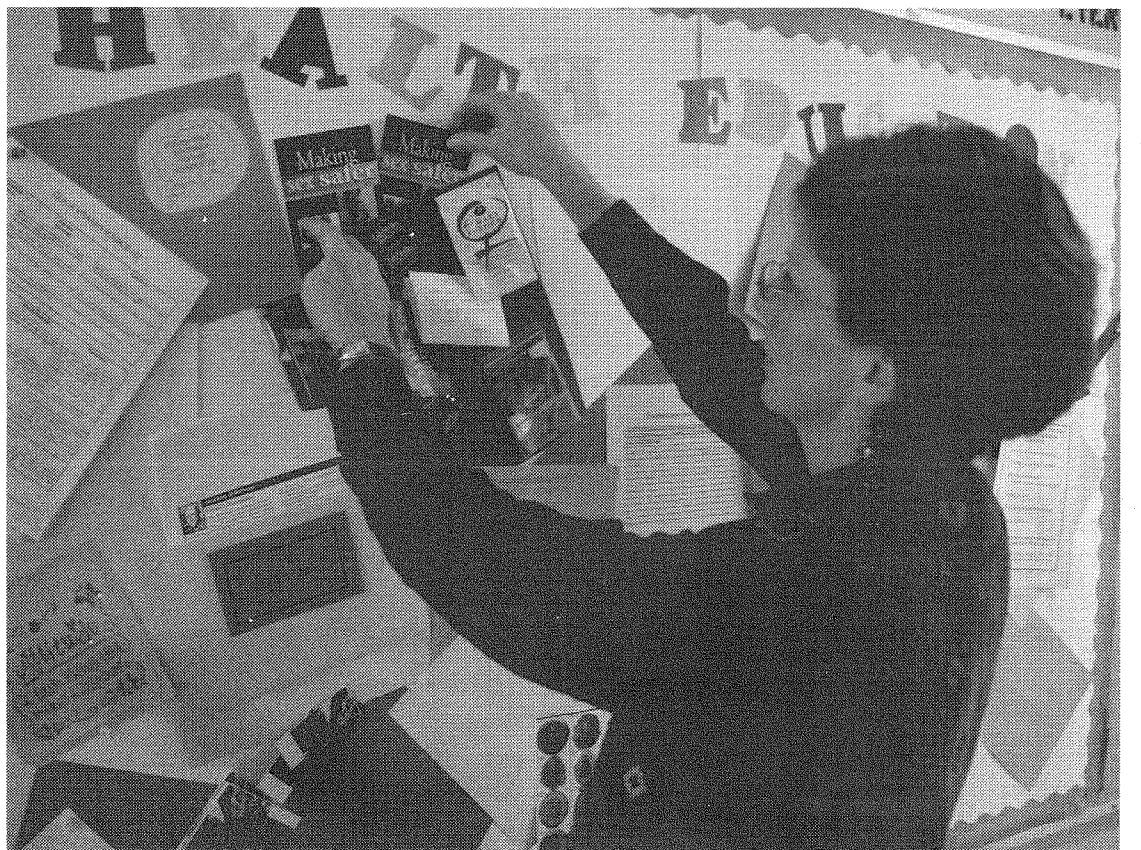
She also works with Student Affairs administrators such as Dr. Kevin Austin, director of the Counseling Center, and Margo Marshak, vice president of Student Affairs, to create what she termed a beneficial atmosphere for the students.

"People ask me 'What do students think about this or that idea?' and I need focused student opinions, so I founded the SAC."

The SAC looks at various health issues including nutrition, exercise, stress management, student loneliness and sleep deprivation. It is developing ways to publicize available resources, helping to create a Caltech health education Web site and promoting awareness of health-related issues.

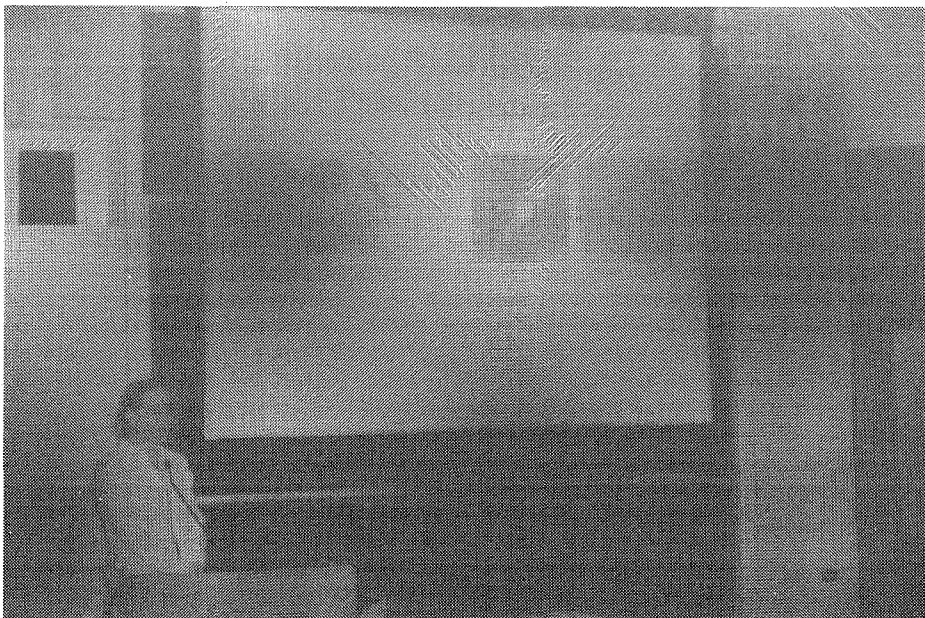
Most recently, the topic of conversation has been nutrition. Students are concerned about the fresh-

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D. Korta/The California Tech

Campus Health Educator Jane Curtis puts up health-related pamphlets on her bulletin board. Dr. Curtis heads the Health Education Student Advisory Committee, which provides feedback and ideas to her.



Second place winner Rachel Thessin '03 gives her talk on "Bringing Phase to Quadrature Phase Interferometry." T. Ma/The California Tech

SURF Year Ends With Perpall Speaking Finals

By TAMMY MA

The 2002 SURF year was brought to a close on Thursday with the final round of the 2002 Doris S. Perpall Speaking Contest.

The first place winner was Kristin Shantz '04, second and third places were won by Rachel Thessin '03 and Hermes Huang '04, respectively.

These awards were the culmination of months of hard work for these winners. Each started out participating in the Summer Undergraduate Research Fellowship or SURF program. For ten weeks during the summer, they and over 300 other undergraduates from Caltech and other universities performed research under the guidance of mentors here and at JPL.

The SURFers then presented their research on SURF Seminar Day, which took place on October 19, 2002. The session chairs and judges identified the best speaker in each session and these students were invited to the semifinal round. In three rounds of competition, the number of students that advanced to the next round was cut down from 200 to 30 to the eight in the final round. These eight gave their presentations again to a panel of four judges, who then picked the top three presenters.

Each student had a presentation time of 15 minutes, with an additional three minutes for questions and discussion. Prizes were awarded for presentation skill and not for research results. The first place winner receives \$500; second, \$300; and third, \$200.

The Doris S. Perpall Speaking competition was begun in 1993 to motivate students to prepare excellent presentations. It was established and continues to be funded by Robert Perpall in honor of his late wife, Doris. It was her desire to have "students...communicate their ideas in a clear and enthusiastic way, allowing them to reach their full potential."

This year marked the tenth year the Perpall Speaking Contest has been held. Stated Robert Perpall, "Each year, the presentations are getting better. Before starting the competition, there was not much interest among students to present their research. However, it is necessary to understand its importance in academic, industrial and even financial situations. The ability to communicate ideas is paramount."

The competition was originally set up with first, second and third places. But in some years it has been so difficult to distinguish winners that ties for third place have been given. Students are judged on the basis of the introduction and organization of their talk, the technical content and their presentation skill.

Mr. Perpall also commented on how tough the competition was. "The quality of these talks are all excellent. Everyone wins because they get the chance to improve their presentations and gain presentation experience. It is also very difficult to judge because no one person can listen to all the presentations [during SURF Seminar Day], let alone have a firm understanding in all the different topics students present in."

The project of this year's competition winner, Kristin Shantz, was entitled "Microfluidic Single-Cell Gene Amplification for Termite Gut Bacterial Analysis." To

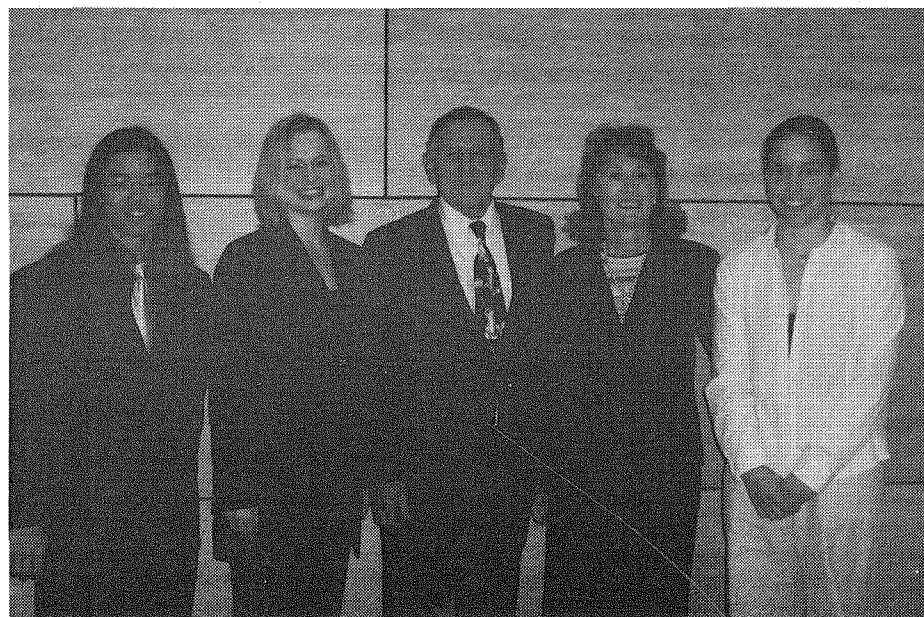
prepare for her presentation, Kristin said she simply "practiced and practiced." She was surprised when she made it to the semifinals and even more so when she won the final round! "It's exciting to be able to present. Any area of science requires communication skills. We have to be able to effectively share our research if we want to get funding."

Second place winner Rachel Thessin gave her talk on "Bringing Phase to Quadrature Phase Interferometry," and third prize Hermes Huang's presentation was "First Principles Dislocations Properties in MgO From Molecular Dynamics."

The other five finalists, Safia Abidi '03, Serina Diniega '03, Stephanie Kovalchik '03, Nitzan Roth '03 and Justin White '04 were awarded honorable mentions. Their SURF projects were spanned the scientific spectrum, ranging from neurobiology to physics to social science.

The Perpall Speaking Contest has now become an integral part of the SURF program. Students, mentors and spectators agree that the presentations and the Perpall Competition serve as excellent opportunities for young researchers to highlight the work they have done and learn to give technical talks. Notes Norma Davalos of the SURF office, "When a student addresses their project in a way I can understand, science doesn't seem so exclusive for someone as myself."

"The Perpall contest supports Caltech's efforts to help students develop good communication skills. SURF has always had the requirement that students report on their research through written technical papers and oral presentation. Since science not communicated is essentially science not done, communication is a critical component of the research experience. Good communication skills are important in the jobs and professions that students will enter and SURF provides students the opportunity to begin to develop those skills," added Carolyn Merkel, director of the Student-Faculty Programs at Caltech.



The winners of the 2002 Doris S. Perpall Speaking Contest pose with Mr. and Mrs. Perpall. From left to right are Hermes Huang '04, Kristin Shantz '04, Mr. Perpall, Mrs. Perpall and Rachel Thessin '03. T. Ma/The California Tech

CALTECH CONVENTIONAL WISDOM WATCH



Health Educator: She wants us to eat a SAC of vegetables. And she leaves funny messages on her health board.



National Insecurity: Sorry, hawks and aspiring Kirks: there's nothing classified in this neck of the woods, says Koonin. Unless you count last Ditch Day's mechanical elephant; nobody, even Saddam, saw that coming.



Jim Townshend: With all his "research," he's the talk of the *Towns*. But in the coming investigation, just what—or Who—will transpire? Maybe he'll just *hend* up in jail with the others.

'Simultaneous Submission' Stance Underscores Security Compromise

Continued from Page 1, Column 5

search for them, according to Director of Sponsored Research Richard Seligman. The government agencies, typically military branches, have asked that foreign nationals not be allowed to work on their projects and stated that the government reserves the right to review all reports before publication.

Universities have generally been rejecting such conditions. Caltech has a kind of compromise policy of "simultaneous submission"—that is, "you write the paper and then submit to a journal and simultaneously submit to your contract monitor," according to Associate Provost Dan Meiron.

Last year, though, Dr. Meiron's research group accepted a contract from the Army Research Lab that forced them to submit to the contract monitor before publication. The contract was made just weeks after September 11, 2001 and ARL was unwilling to negotiate on the position. According to Dr. Meiron and Dr. Seligman, when the Office of Sponsored Research was finally able to convince the Army of removing the restriction, the financial year had ended for the Army, putting funds at risk if the contract had to be re-signed.

"Ultimately, [Caltech] decided to accept the language because I was not really bothered by it and didn't think it would hold up our work at all," explained Dr. Meiron. Dr. Seligman and Dr. Meiron both emphasize that the decision does not reflect a policy change on Caltech's part, saying that the acceptance had been done in such a way to not set a precedent. Were the funding for the project to be renewed, the restriction would not be accepted, added Dr. Meiron.

One reason that the language was accepted was that since September 11, there has been "many people anxious to find a way to help out," stated Provost Steven Koonin. And Caltech happened to be well equipped to carry out the project, an analysis of the effect of blasts on structures. There is a strong sentiment to not work on classified projects. Asserts Dr. Seligman, "Classified work shouldn't be done at Caltech."

The National Academy of Sciences recently discussed the issue of classified work and issued a statement saying that it "recognizes a need to achieve an appropriate balance between scientific openness and restrictions on public information." Dr. Koonin, who every

summer works with a group of academics from across the nation to tackle classified problems for the government, explains, however, that some groups have it easier than others. Physicists, for example, are more familiar with security concerns than chemists and biologists, since their field evolved under tight security.

Lately, Caltech scientists have been feeling a more pronounced presence of security. Security at the Jet Propulsion Laboratory has been bolstered, though Dr. Koonin has found it to be "not an impediment [to employees], more of an annoyance." The government also has re-emphasized a regulation requiring "select toxic agents" to be registered where used and stored, according to Dr. Seligman. Caltech does not have or use any of these agents, which include anthrax and smallpox virus.

Since September 11, 2001, Caltech has certainly felt and understood the need for increased security, but university policy of academic openness has not allowed the principle of academic research to be compromised by unnecessary security restrictions.

Question of the Week

Should Caltech compromise more for the cause of national security? What, if any, obligation do we have as students and researchers to our nation?

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Ensminger Plots Econ. Presentation

By ROBERT TINDOL

U.S. Congressman Adam Schiff and California Institute of Technology professor of anthropology Jean Ensminger will conduct a forum for area math and science students and their teachers on the Caltech campus at four p.m. the Monday after next in Beckman Auditorium.

The topic of this quarter's Congressional Science Scholar Forum will be "Experimental Economics in the Bush: From Africa to Small-Town America," which focuses on Dr. Ensminger's expertise in experimental economics. Dr. Ensminger, who is also chair of

Caltech's humanities and social sciences department, conducts her research by running experiments to investigate how economic decision-making can vary across cultures.

Dr. Ensminger carries on her studies through the use of games, in which groups of people are provided money with which to engage in exchanges in a controlled environment. In one scenario, for example, she brings a group of people to play in pairs. One player is told he or she has a certain amount of money to divide with the other person; both will remain anonymous to each other and player one can give player two any

amount or nothing. How is the money divided? More fairly than one might guess, often as high as a 50-50 split.

For almost 25 years, Dr. Ensminger has traveled to Africa, living and studying with the Orma tribe, partially nomadic cattle herders in northeastern Kenya, near the Somali border. She returned this past summer to gather new data. In the February 3 forum she will discuss her experiences in learning how economic theory applies to social behavior.

Dr. Ensminger continues to serve as an anthropology professor and

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D. Korta/The California Tech

In a heated question-and-answer session, lecture attendees question Crichton's technophobic themes in his books.

From Shared to Switched Net, ITS Makes Jump From 10 to 100 Mbps

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switched network. At the same time, the backbone that connects the houses to the rest of campus was upgraded to a one-gigabit-per-second fiber optic line.

Along with the changes, ITS is putting a rate cap of 10 Mbps for connections max to the outside of Caltech.

According to Larry Watanabe, manager of operations at ITS, the "biggest benefit [of the upgrade] was to get rid of the shared network." A shared network is like a party line: only one person, called a "node," can talk at any time. Other nodes can talk but must wait for the line to clear first. "Conversations" on a shared network are half duplex meaning that a node cannot both talk and listen at the same time.

Furthermore, the total network bandwidth, which is the maximum rate that data can be transmitted across the network, was limited by the 10 Mbps speed. This figure measures the total pooled bandwidth available, split evenly among users online.

As a consequence, the network slowed down drastically during times of peak usage. Technically, this stems from shared networks' use of so-called "hubs," which portion off Internet access to a number of users, to connect the various nodes.

To solve such inherent problems

of a shared network, ITS replaced the approximately eight hubs in each house with two Cisco switches so that the House networks would be fully switched. In a fully switched network, each node can talk to any other node at any time and multiple nodes can talk to one node any any time, although their messages get "multiplexed" in the process.

Communication is done at "full duplex," meaning that a node can both talk and listen at the same time, thus doubling the effective bandwidth. Most importantly, however, each computer gets the full 100 Mbps bandwidth so that the total network bandwidth is equal to the number of nodes times the speed of the switch.

For a typical switch of 24 ports running at 100 Mbps, this means a total network bandwidth of 2.4 Gbps. With the upgraded network, students should see better Internet performance and much better speeds to on-campus computers.

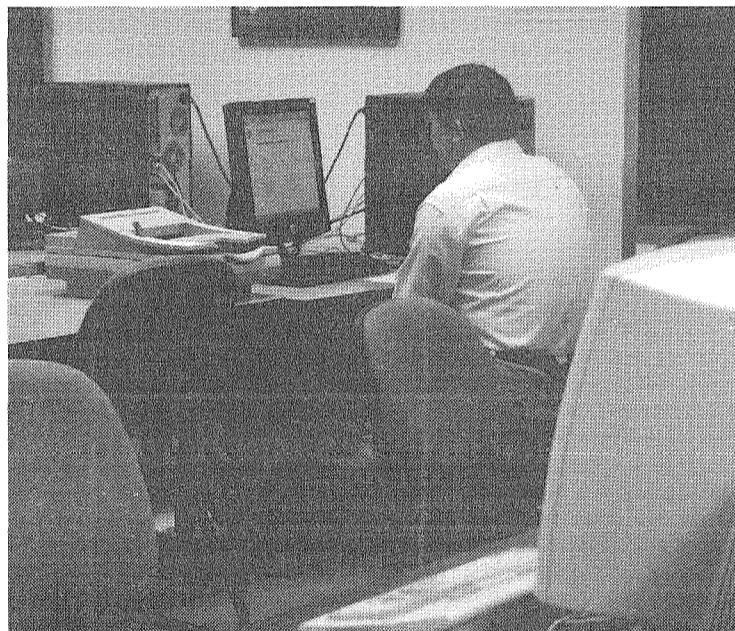
According to Watanabe, pings, a measure of latency—the delay between sending a packet and receiving it—will be a little better but he stresses that pings are "not a good measurement of performance."

In addition to the improved performance, the upgrade will also let ITS better manage the house networks. Said Watanabe, "If a node is causing problems, the owner may

be identified and/or the port disabled."

Braun and Marks are scheduled for upgrades this term but there is yet no set date for Avery. Regarding the delays, Watanabe said that "it's not on the calendar yet" but said that it will definitely be done in the future when both money and time become available.

Sometime in the future, students can also expect wireless access to be installed in the Houses—first in the common areas and followed by the dorm rooms.



D. Korta/The California Tech

A student uses an ITS computer in Steele Lab. The Caltech network was recently upgraded to a 100 Mbps fully switched network.

'Evening With Lasorda' To Host Dodgers Great

By JILL PERRY

Los Angeles Dodgers senior vice president and all-around baseball legend Tommy Lasorda will be honored at "An Evening with Tommy Lasorda" at eight p.m. on February 7 in Beckman Auditorium. It is free, open to the public and no tickets or reservations are required.

Tommy Hawkins, Dodgers vice president for external relations and former Lakers basketball player, will welcome Lasorda onto the stage at Caltech and will interview him about his career.

Special guests will include Buzze Bavasi, the general manager who hired Lasorda into the Dodgers organization; Rod Dedeaux, the former USC baseball coach who produced many major-league prospects including Tom Seaver, Randy "The Big Unit" Johnson and home-run king Mark McGwire; Peter O'Malley, former Dodgers president who sold the team in 1998; and Jo Lasorda, his wife of 51 years.

Lasorda's 50-year career in baseball included stints as a minor league player, major league player with the Kansas City Athletics and the Dodgers and as a scout, coach,

manager and executive with the Dodgers. With his outsized personality and unquenchable enthusiasm as their manager, Lasorda led the team to eight division titles and two World Series victories, in 1981 and 1988.

After suffering a heart attack in 1996, Lasorda retired as general manager. In 1997 he was elected into the Baseball Hall of Fame and in 1998, he was elevated to Dodgers senior vice president. He also managed the U.S. baseball team to its first-ever gold medal in baseball at the 2000 Olympic Games in Sydney, Australia.

Caltech, the Jet Propulsion Laboratory and the California Coast Baseball Academy will make presentations to honor Lasorda as part of the evening program at Caltech.

Each attendee will receive a Tommy Lasorda "bobblehead doll"—a Lasorda figure with a large, vertically "bobbling" head—as a memento.

The event is sponsored by the Caltech Employees Federal Credit Union, the Caltech Management Association, the Caltech Y and the Los Angeles Dodgers.



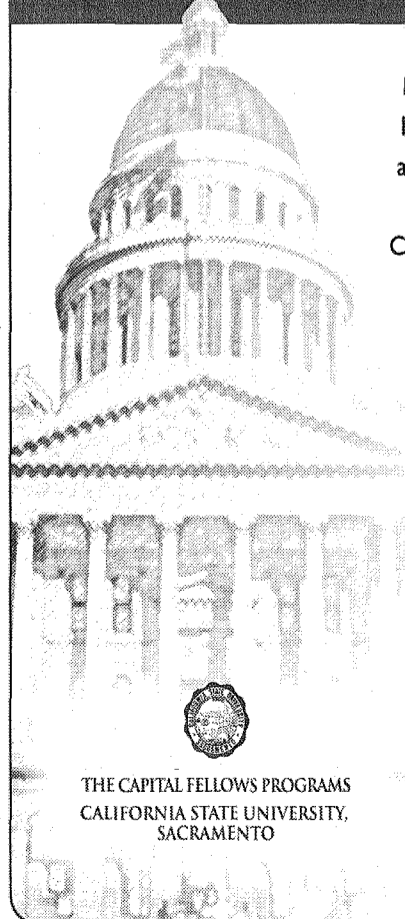
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Old Traditions Die Hard at Tech

Dean Revel Examines the History Behind the Ricketts Fire Pot

By JEAN-PAUL REVEL

In the opening soliloquy of a well-known 1960s musical Teviah, husband of Golde—"Do you love me?"—and father of five daughters explains: "A fiddler on the roof. Sounds crazy, no? But in our little village of Anatevka, you might say every one of us is a fiddler on the roof, trying to scratch out a pleasant, simple tune without breaking his neck. It isn't easy. You may ask, why do we stay here if it's so dangerous? We stay because Anatevka is our home. And how do we keep our balance? That I can tell you in a word: *tradition!*"

While Teviah's solution to anti-gravity may be a bit surprising it is an equally curious twist of things when an institution such as ours is also revealed to rely on traditions. By the way, it might have been okay for Teviah to stand on his roof, but dear reader and friends, don't you dare emulate that esteemed character by standing on the roof of your house, to fiddle or to do anything else. Great for him to invoke Tradition in a supratetectal position but that's no place for you to be.

But to get back to where I was going, is it not surprising that there would be such "conservative" undercurrents at Caltech? Aren't we the folks at the cutting edge? Full speed ahead, not slowed down by the old ways or staid procedures, charging ahead while leaving behind the traditional way to get things done.

Come to think of it, besides avoiding roofs, better watch out for that sharp cutting edge too. To avoid the problem I'll say instead: we are at

the leading edge, scanning the mental horizon, gathering new facts, venturing where no one has as yet gone, devising new tools, inventing new ways. A tradition of innovation if I can use that oxymoron.

We look for the most recent, the most modern, seemingly all the stuff most antithetical to the traditional. And yet one does not have to scratch very deep to find well established traditions. Among the most assiduous keepers of the flame (sic) are the students, even though the most ephemeral of students.

Students observe many traditions but this particular harangue is inspired by the recent events in Ricketts House. It is the end of an era, with the fire pot that has been gracing their courtyard about to disappear per order of the fire department and apparently the helping hand of some of the students. As many of you are aware the pot has been the object of much heated (sic) debate over the last few years, until the great Civil Authorities as of last week gave the order for its removal. The pot nearly met its end several times in the past but each time had managed to escape with its traditional use allowed but only under supervised, carefully controlled, conditions.

As I reported in these pages before, some claim that the pot owed its existence to a gesture by Millikan, making it an object of special reverence. No wonder that such a precious thing would be seen as the subject of traditions. Trouble with that theory of course is that the pot had nothing to do with Millikan. For one thing the present object in the Ricketts courtyard is not the original, which was destroyed many years ago when it cracked when cooled too rapidly. A pity especially considering that, from the pictures I have seen, the original pot was more graceful than its successors.

Some five years ago the institute archivist aka Dr. Goodstein, our registrar, gave me the following information taken from the minutes of the May 13, 1931 meeting of the Executive Council. On that day, Dr. Munro, professor of history, had reported that "Mrs. George Millard had in her studio a very beautiful wellhead of Verona marble which Ricketts architect George Kauffman considered especially suitable for the court of Ricketts House, that the price of this wellhead was \$850 but that Mrs. Millard

had offered to make a gift of one half this amount by a reduction of the price to \$425. Dr. Munro then recommended that the Institute accept Mrs. Millard's offer and stated that he would personally arrange for the payment of the other half of the cost, provided there are not sufficient savings to take care of it in the budget. On motion of Mr. Balch, seconded by Mr. Robinson—both Caltech Trustees—it was voted that the recommendation of the architect and Dr. Munro as stated be approved."

So it is clear that the original pot was not the holy relic of a vaunted president. But over the years in a process that I have not explored and so will not comment on, the marble wellhead became a cement firepot, while nevertheless gaining much symbolic meaning for successive generations of Scurves as it was loosing cachet.

What will happen now is not known to me as I write this. Whether there will be a new, legally acceptable incarnation of this cult object will be—has been?—decided by the present members of the House.

Traditions provide us with a sense of security and comfort, something familiar in a changing and sometimes scary environment, so I presume that there will in fact be something to replace the pot. Well and good.

But at this instant of change there is an opportunity to examine the tradition, to determine if it is something that is still valuable today. As time passes by and circumstances change, traditions do not necessarily remain relevant or appropriate. Rather than keeping them by force of habit, now may be the time to reexamine some of the routine practices in the house.

Using a firepot in a crowded urban environment may well not be the thing to do. I have heard there is some interest in replacing the pot with a garden barbecue. That would certainly preserve some of the aspects that endeared the pot to generations of students, but looks pretty plebeian to me. May I suggest a graceful object with a planting of red Salvia and orange Marigolds to commemorate the pyres of the past? There could be added some of those red Canna lilies... But that may well sound to wisy-toity to you. Ah well, time to wish you all, *ex traditio*... a bientot.

Letters: Lecture Analysis, Harry Potter Orientation

A Queen's Response

Dear editors,

I'm writing in response to an article in last week's *Tech*, "Stuck in Past, 2002 Flicks More of the Same" by Joe Escalada '03. Although I was greatly moved by the author's eloquence—popcorn vomiting indeed!—I was deeply troubled by his objection to various films "on the basis of heterosexuality."

Am I missing something? I don't exactly remember any throngs of homosexuals camping out in front of the Paseo Colorado waiting for *Santa Clause 2* tickets. Did I not get the memo? (Note that the National Center of Gays and Lesbians United for the Subversion of Straight People officially denies the existence of any such memo.) And contrary to Mr. Escalada's opinions, *Harry Potter and the Chamber of Secrets* is not some sort of gay-brainwashing seminar aimed at converting unsuspecting heterosexual moviegoers.

The author, however, is under the impression that any sane, rational straight person should avoid these movies like the plague. Don't get me wrong, I think *everyone*—straight, gay, lesbian, transgendered, my mom—should avoid movies like *Glitter*, *Half Past Dead* or *Swept Away*, but what, "on the basis of heterosexuality," is objectionable about *Harry Potter*? Does the author have some sort of broom envy? Is he opposed to the idea of boys wearing brightly colored scarves? Or is he just an alumnus of Hogwarts School of Homophobia and Bigotry?

As a very devoted and practicing homosexual and president of the Student Pride Association, Caltech's gay and lesbian club, I think I echo the sentiments of the gay and lesbian community when I say that we do not object to *The Divine Secrets of the Ya-Ya Sisterhood*, *The Country Bears* or *Blue Crush* on the basis of our sexuality—homo. or otherwise. We object to them on the basis of them being crappy movies!

As for the author of the aforementioned article, if his sexual identity is so fragile as to be threatened by *Harry Potter and the Chamber of Secrets*, then I fear that it won't be long before he stars in his very own coming-of-age story—a musical, perhaps—and is happily riding

broomsticks for the other Quidditch team.

Juan Garcia
Homosexual, President and Queen of the CSPA

Flaws in Lecture Analysis

Dear editors,

In last week's *Tech*, Jialan Wang '04 discussed the deficiencies of teaching at Caltech and the application of cost-benefit analysis to explain why students do not always go to lectures.

It is doubtless true that some lecturing at Caltech is poorly done and boring and it is doubtless true that a correct application of cost-benefit analysis, a Darwinian concept, can lead to the conclusion that some lectures are not worth attending. This could even be true for some students in cases where the class is well taught.

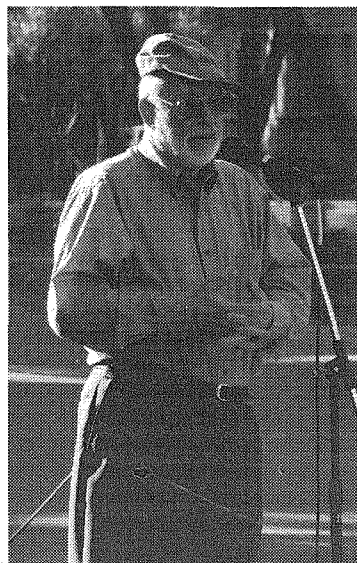
I want to challenge, however, the assumption that students always have the data to do this analysis or know how to do the analysis well. Deficiencies in data collection can arise either through failure to attend enough classes fully awake or through a failure to recognize the possibility that the benefits may not be immediate.

I discovered some years ago when teaching what is now ACM95 that some students never attended any of my lectures. These students cannot have had the data necessary to make the decision on whether they were worth attending! This, by the way, is a class for which I got an ASCIT teaching award.

I also know by collecting data from alumni six years ago that the appreciation of a course may be delayed until well after the real-time pain of the course; ACM 95 is a particularly good example. This suggests to me that students may lack the perspective on a course at the time they take it that would enable them to make the decision on whether it is useful to them.

The biggest problems center on homework, which is emphasized too much, especially by students but perhaps also by faculty. Here I would make two points. First, it might be the case that students are not correctly calculating the cost-

Continued on Page 7, Column 1



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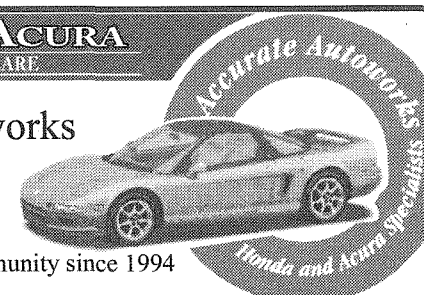
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Y NEWS

Upcoming Events:
 - ON-CAMPUS TUTORING (1/21, 1/23, Winnett 4-6 pm): Stop by Winnett and tutor a local middle or high school student. No experience is necessary. Everyone is welcome to come as their schedule allows. (Contact y-veep@ugcs if you'd like to join the tutoring mailing list.)
 - REBUILDING TOGETHER (1/25, Caltech Y, 8:30 am - 3:30 pm): Do some exterior landscaping and repair for a local elderly family. Tools and lunch will be provided. Email Sid (jaggi@caltech.edu) to RSVP.

Factoid:
 The Y has a website (www.caltechy.org) with a master calendar of future events -- as well as information about club funding, camping equipment rentals, and SASS speaker nights.

Y Not Join Us?
 Come to an ExComm meeting! All meetings are open to students, staff, and faculty - every Monday at noon in the Caltech Y.

The Y (x6163) is located on the first floor of the Student Services Building, south of the Holliston parking structure. If you are interested in a Y activity or have questions about the Y, please stop by, or send an email to the Vice President (y-veep@ugcs).



The Literature Faculty is pleased to announce the **57th Annual McKinney Competition**. The Mary A. Earl McKinney Prize is awarded each year for excellence in writing. Only full-time students officially registered at Caltech as undergraduates are eligible to enter the competition. This year, prizes will be given in three categories: poetry, prose fiction and non-fiction essays. All submissions must be typed and double-spaced. Include your address and phone number. In the poetry category, entrants may submit up to three

poems. Submissions of prose fiction should not exceed 12,000 words. Essays may be ones prepared for a humanities class or any good piece of original writing on a topic relevant to the humanities. The prize in each category will be \$300. Each student is entitled to only one entry in each category. Contestants should submit their work to Professor Jenijoy La Belle, Division of the Humanities and Social Sciences, 101-40, by no later than March 6, 2003. No entries will be returned. Each category will be judged by a committee from the Literature Faculty. Essays will be judged on the quality of thought and the effectiveness of the writing. Winners will be announced in May and the names of the winners will appear in the commencement program. The Committee may divide the award in each category in case of more than one outstanding submission. Previous winners in any one category are not eligible for the competition in that category. If you have any questions, contact Prof. La Belle, extension 3605 or Barbara Estrada, extension 3609.

Caltech Opera Club Meeting. Wed., Jan. 29, 12 - 1 pm. Chris Brennen Conference Room, 3rd Floor, Center for Student Services. Topic: Rossini's *The Barber of Seville*. Please join us for an hour of fun as we discover Rossini and his sparkling comic masterpiece. Please bring your lunch and friends. If you have any questions about the Caltech Opera Club or this particular event, please email Angela Wood at auwood@caltech.edu.

CIT Guitar Classes for the Winter quarter are meeting now on Tuesdays in SAC Room 1 as follows: Beginning Guitar Class 4:30 p.m. - 5:30 p.m.; Intermediate Guitar Class 3 - 4 p.m.; Advanced Guitar Class 5:30 p.m. - 6:30 p.m.. Classical and flamenco repertoires are explored, but techniques transfer to other styles of guitar. The *Beginning Class* starts from the beginning each quarter and includes a jazz/folk chord system. Classes are free to Caltech students and other members of the Caltech community (space permitting). Undergraduates can receive 3 units of credit. The instructor, Darryl Denning, has an international background in performance, teaching and recording. Mr. Denning can be reached at ext. 2923 or

DILBERT® by Scott Adams

1. I WORK FOR AN UNETHICAL COMPANY. DOES THAT MAKE ME A BAD PERSON?
 YOU'RE LOATHSOME AND DESPICABLE. IF CRUD WORE SHOES, YOU WOULD BE THE CRUD IN THE CRUD'S SHOES.

2. WHY DID THAT SEEM REHEARSED?
 THAT'S ALL I THINK ABOUT WHEN WE GO FOR WALKS.

3. I'M PUTTING YOU IN CHARGE OF BUILDING OUR NEW TECHNOLOGY LAB.
 PICK THE CONTRACTOR WITH THE LOWEST BID. I DON'T FORESEE ANY PROBLEMS WITH THAT STRATEGY.

4. SO, YOUR BID SAYS YOU'LL DO THE JOB FOR "... A CHANCE TO GNAW ON WOOD."
 TOO HIGH?

5. YOUR CONSTRUCTION BID IS THE LOWEST, SO I HAVE TO AWARD YOU THE JOB.
 WHEN CAN YOUR TEAM OF HIGHLY SKILLED CRAFTSMEN BEGIN?

6. DAY ONE: MY EX-WIFE SET MY TRUCK ON FIRE.
 I LOOK TO THE NORTH. YOU SEE 10,000 ORCS CHARGING YOUR FORTRESS, PREPARED FOR EPIC BATTLE. MY ELF FIRES AN ARROW OF +205 DEVASTATION. HIT! THE ORC ARMY IS DESTROYED!

7. CLEARLY, TOLKIEN NEVER PLAYED D&D.
 YOU NOW SEE 10,000 BALROGS CHARGING YOUR FORTRESS...

8. THE PROJECT IS BEHIND SCHEDULE BECAUSE OUR CONTRACTOR IS A LAZY BEAVER.
 FOR A WHILE HE WAS MAKING UP EXCUSES. NOW HE DOESN'T RETURN CALLS.

9. I HOPE TO GET HIM BACK TO MAKING UP EXCUSES BY PROMISING HIM MORE JOBS IN THE FUTURE.
 JASON, THAT CAR MISSED MY HEAD BY FOUR INCHES! YOU DON'T HAVE TO RUB IT IN.

10. WE NEED TO UPGRADE OUR PC OPERATING SYSTEMS, SO WE HAVE A STABLE ENVIRONMENT FOR APPLICATIONS.
 THINK OF IT AS A FORM OF TAXATION BY AN EVIL SHADOW GOVERNMENT.

11. SHADOW GOVERNMENT? THAT'S RIDICULOUS.
 SHUT UP AND PAY ME.

12. KIDS, I'M ORDERING A PIZZA. WHAT KIND DO YOU WANT? PEPPERONI. PEPPERONI. PEPPERONI. I NEVER THOUGHT I'D LIVE TO SEE THE DAY WHEN THOSE THREE KIDS WOULD AGREE ON SOMETHING.

13. HELLO, DOMINICS? ...ON THICK CRUST. ...ON THIN CRUST. ...ON WHATEVER THE THIRD CHOICE IS.

14. FOR ONLY A MILLION DOLLARS, YOU CAN UPGRADE TO OUR NEWEST SOFTWARE VERSION.
 OR YOU CAN SLOWLY DECOMPOSE IN THE MIASMA OF OUR PLANNED OBSOLESCENCE.

15. WE CAN'T AFFORD TO UPGRADE NOW.
 SAY GOOD-BYE TO THE DIGITS THREE AND NINE.

FoxTrot by Bill Amend

1. ZZZZ...
 SNAP! CRACKLE! POP! SNAP! CRACKLE! POP! SNAP! CRACKLE! POP!
 WHY DO I EVEN BOTHER SETTING AN ALARM CLOCK?
 CAN YOU GRAB ME ANOTHER CARTON OF MILK?

2. YOU ARE SUCH A GEEK.
 WHY, THANK YOU.

3. I LOOK TO THE NORTH. YOU SEE 10,000 ORCS CHARGING YOUR FORTRESS, PREPARED FOR EPIC BATTLE. MY ELF FIRES AN ARROW OF +205 DEVASTATION. HIT! THE ORC ARMY IS DESTROYED!
 CLEARLY, TOLKIEN NEVER PLAYED D&D. YOU NOW SEE 10,000 BALROGS CHARGING YOUR FORTRESS...

4. THE PROJECT IS BEHIND SCHEDULE BECAUSE OUR CONTRACTOR IS A LAZY BEAVER.
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11. WE CAN'T AFFORD TO UPGRADE NOW.
 SAY GOOD-BYE TO THE DIGITS THREE AND NINE.

(323) 465-0881 or by e-mail at: ddenning@caltech.edu. The Guitar Home Page is: www.music.caltech.edu/denning/index.html.

Hallett Smith Competition. The Literature Faculty is pleased to announce the Annual Hallett Smith Competition honoring the finest essay devoted to Shakespeare. Only full-time, officially registered undergraduates are eligible to enter the competition. All submissions must be typed and double-spaced and should not exceed 4,000 words. The essay may be one prepared for a humanities class or may be specifically written for this competition. No student can submit more than one essay. All contestants must submit two hard copies of their work to Professor Jenijoy La Belle, Division of the Humanities and Social Sciences, 101-40, no later than April 17, 2003. This year's prize will be approximately \$300, though the judging committee may divide the award in case of more than one outstanding submission. For more information, contact Prof. La Belle, x. 3605 or Barbara Estrada, x. 3609.

The election for the proposed amendments to the ASCIT Bylaws will be held on Wednesday, January 22. Voting will open at 10am and will close at 10pm on that day. ASCIT members can vote online at <http://donut.caltech.edu/> or on paper in the House lounges. Information regarding the amendments can be found online at <http://donut.caltech.edu/about/news/bylaws/>

Caltech's Division of the Humanities and Social Sciences presents its **Seminar on Science, Ethics and Public Policy**. Dr. Harry Collins and Andrew W. Mellon, a Visiting Professor of History from Cardiff University will give a talk on "A Non-Expert Investigates Experts: A Long Term Sociological Study of Gravitational Wave Scientists." Baxter, Room 25, Fri., Jan. 24, 2002, 4 p.m. Seminars are on the Caltech campus and are open to the community at no charge. For information, contact Heather Guyett at (626) 395-3829 or heather@hss.caltech.edu.

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The Changing Bylaws: Voters Faced With Four-Pack Director-at-Large Amendment

The Proposal, Top to Bottom

By TED JOU

The Director at Large amendment is definitely the longest and probably the most confusing of the four proposed amendments. Since I wrote it, I would like to try to explain this complex proposal.

Structurally, what the amendment does is create a new position on the Board of Directors called the Director at Large. It replaces the current Freshman Director-at-Large position, but has responsibilities that are entirely new, namely, to communicate with and support the activities of the undergraduate student representatives to faculty and institute committees.

The Director at Large is empowered with supervisory power, but the longest portion of the amendment is concerned with appointment power. The newly created Article XV of the bylaws delineates the procedure for choosing representatives to specified faculty and institute committees. The procedure is written so as to closely match the procedure currently being used and even simplifies it somewhat. The rules listed in that article are largely derived from existing resolutions of the ASCIT BoD or the Interhouse Committee.

The IHC and two ASCIT subcommittees with a house-based structure share the responsibilities for interviewing and appointing student representatives. These house-based committees are chosen for this role because they have historically held this power and are most likely to have members that are familiar with the candidates. Section 11 of the new article delineates specific responsibilities for the student representatives, giving them a code of conduct that never existed before. It was never explicitly expressed whether the student representatives were supposed to voice their own opinions or to try to voice the opinion of the student body at large. This section makes it clear that each student representative should act for

the entire student body, an important distinction.

The other major provision of the amendment is the recall procedure for appointed officers. Currently, the ASCIT BoD votes to approve each nomination of the IHC or the ARC. This procedure has been somewhat unclear, with no clear provisions when the BoD turns down specific appointments.

In this new construction, the BoD no longer has the privilege of reviewing the nominations; the IHC, Academics and Research Committee and Executive Social Committee are empowered with the full responsibility; their appointments are final when they make them. The ASCIT BoD may remove officers, however, if they are delinquent in their duties. This switches the BoD's role from one of a personal nature, choosing whom they like and don't like without even having interviews, to one of a pragmatic nature, removing those representatives that are ineffective or negligent.

This recall provision gives the Director at Large real authority; otherwise there would be no incentive for committee representatives to do their jobs well.

Overall, the amendment creates a structure under which the student government can manage the students that are representing the entire student body in various committees. Along with this new responsibility, it formalizes many procedures associated with putting students on committees and defines the relationship between those representatives and a new manager for them, the Director at Large.

A MATTER OF FACT

The *Tech* did not receive opinions on or explanations of each of the four amendments. Raw information on the others is available online.

DaL: Focal Point for Committees

By TED JOU

As the primary author of the Director at Large amendment, I would like to try to explain the motivations for this proposal. Writing it has been an ongoing project of mine since the beginning of this school year and it represents a solution to what I believe is the most prominent shortcoming in our current student government.

On this campus, almost every administrative decision first passes through some committee. It is extremely important for students to have a voice on those committees and

POINT
"The proposed Director at Large would serve as this point of communication."

the student government has been very inefficient in that respect.

ASCIT first realized this in 1967 and in a Corporation meeting, over 400 students came together and passed a resolution asking for student representation on faculty committees. The next year, the ASCIT Board of Directors asked the Interhouse Committee to nominate potential representatives for those positions. Eventually, the process was opened up so that any student could sign up for an interview with the Interhouse Committee. The number of positions steadily grew

and two years ago, it became necessary for the IHC to share the interviewing responsibility with the ASCIT Academics and Research Committee. ASCIT and the IHC embraced this idea because it would not only alleviate the administrative burden on the IHC, it would help the ARC keep up with the latest academic happenings.

However, if we look at what has actually happened over the past two years, we'll see that the ARC hasn't had very good contact with the committee representatives at all. The truth is, the ARC has too many of their own things to deal with, most prominently the student-faculty conferences. And what of the committees under the IHC's control? Some of those are the most important: Freshman Admissions, UASH, Housing and Health to name a few. The IHC almost never talks with those representatives.

A quick review of the *little t* reveals that there are over 50 of these positions now available, but there is no one that keeps up with what they do, nobody that makes sure

In Support

This bylaw requires the most recent ASCIT minutes to be published in the *Tech*. I think it is very important for the student body to know what their elected officers are doing. People might disagree about the form in which the minutes should be written. Despite putting the minutes on the *donut* Web page, it is important for them to appear in the *Tech*, as it is more widely read than the Web site. The declining standard of the *Tech* makes the publication of the minutes even more meaningful.

Basit Khan '03

In Opposition

Not only does this amendment needlessly restrict the *Tech*, but its open-ended wording gives the Board of Directors uncanny leverage over editors who don't toe its BoD line. Whether you enjoy reading the ASCIT minutes or not, a restriction as permanent and binding as this has no place in the ASCIT bylaws.

There is little question that the ASCIT minutes can *potentially* be a useful raw source of information on the inner workings of our corporate board of directors. Knowing that, this volume of the *Tech* has published all but four of the ASCIT minutes released.

Still, we have no guarantee that every ASCIT secretary will devote himself to this cause of information in every edition of the minutes. We ourselves saw the minutes stray from that goal at points last spring and last fall, often denser with personal commentary than with hard recounts of the BoD's meetings.

Granted, commentary is welcome in a newspaper, but why disguise it as the ASCIT minutes? No other writer has the luxury of *guaranteed*

rambling space, so why should the ASCIT secretary? And yet this by-law mandates just that: everything said by the secretary runs. Is that a policy we as students and we as members of the ASCIT Corporation want in our single bastion of free press?

In short, it's not *functional* minutes we should be worried about—it's the unfortunate possibility of *dysfunctional* minutes. And a "Yes" vote on this bylaw amendment is a vote to remove this *Tech* check on the BoD's—and, in particular, the ASCIT secretary's—public influence.

Supporters point to such a bylaw as a proud guarantee of the minutes' publication, lauding them as the only way the student body can come to know and appreciate the efforts of ASCIT's corporate board. And I as a *Tech* editor wholeheartedly thank the directors for the selfless side of their student work.

That said, we must humbly ask, "where's the fire?" Half of this year's minutes have already been published in the *Tech*, even despite their simultaneous availability and advertisement in numerous other media, including ASCIT's well-visited *donut.caltech.edu*. The *Tech* already understands the importance of raw information and has brought it to you as a reader when necessary. We as students have no need for this bylaw.

There is also the unfortunate reality of the bylaw's open-ended wording. Any bylaw is deservedly a big deal—and any officer charged with fulfilling a bylaw must always have the means of fulfillment.

The problem, then, is that this amendment specifies no protocol for ASCIT-*Tech* communication. Last year, the minutes regularly arrived on the *Tech*'s doorstep late Sunday, often just hours before the *Tech* was to be shipped off to the publisher. In such circumstances, there was sometimes physically no

time to restructure the entire layout around the then-usual dragging length of the minutes.

So I as an editor was left with three options: trim the minutes, cut the minutes or publish late and rework the entire issue. The first two options wouldn't be legal under this amendment and the *Tech* has hardly the staff to support the third nor is it desirable from a reader's standpoint.

But with the proposed amendment, leaving out the minutes even under these circumstances could be grounds for censorship, recall or worse. Or, perhaps worse yet, it could be *leverage* for a hostile BoD, a trump card in any negotiation with editors. Far-fetched, you say? Conspiratorial? Perhaps—but it is important to note that had this bylaw been in place last year, the question would have been forced in more than a few instances.

Exactly *how far* the BoD chose to take prosecution of such an infraction—that is, failing to publish the minutes after they arrived late, incomplete or in an unreadable format, all of which have happened—would underpin precisely the editorial leverage the directors would have then been free to exercise.

And that brings us to the broader problem with this amendment: government and media don't mix. And, more certainly than not, they shouldn't be required to mix. All of us, including the *Tech*'s staff, enjoy reading about the weekly meetings of the board of directors when there's something interesting afoot. And so, not only is there no need for this bylaw but it also removes an important check on ASCIT's corporate structure. A number of past *Tech* editors agree that this provision has no place in the bylaws. Please join us in voting "No" on this unnecessary addition.

Kevin Bartz '05

Don't Compromise Freshman Representation

By GUNNAR RISTROPH

If the members of ASCIT vote to pass either the first or second proposed amendment to the ASCIT Bylaws, freshman representation on future BoDs will be severely compromised. Both of these proposed amendments remove the position of Freshman Director at Large and only in rare circumstances will a freshman be elected over a sophomore or junior for any other office.

The ASCIT Board of Directors has proposed four amendments to the bylaws to be voted on by all members on Wednesday. The first proposed amendment creates a much-needed process for dealing with appointments to outside committees with an office of "Director At Large" to oversee the appointments. The second amendment creates a new office on the BoD, the Director of Publications. While both of these purposes are good and address pressing problems, these solutions have an unacceptable side-effect: they remove guaranteed freshman representation on the BoD.

Having a position reserved for a freshman on the BoD is absolutely necessary. When the next BoD meets to discuss the budget, parking issues, the core curriculum and just about any other problem, the views and the vote of a current freshman will provide balance and more equal representation.

I have discussed my objection with Ted Jou '03, ASCIT president, who views the destruction of the freshman position as an unfortunate but negligible consequence of a larger plan to improve student government. In the only mention of the

problem in his cogent yet lengthy defense of the proposed amendments posted on the *donut* newsgroup, Jou dismisses the issue: "One negative: The Director at Large amendment effectively removes the office of Freshman Director-at-Large, which is somewhat unfortunate, since having a freshman on the BoD has provided for good diversity."

COUNTERPOINT

"The importance of the FDAL as a full member of the BoD cannot be ignored."

Reading the proposed amendments reveals that the Director of Publications amendment also removes the office of FDAL. My conversations with Jou confirmed that passage of either of the first two amendments would result in no FDAL on future BoDs.

Jou consoled me with the fact that there are plenty of opportunities for freshmen to get involved with ASCIT outside of the elections. While I'm sure there are plenty of committee positions to go around, these are no compensation for a say and a vote on the body that decides many important questions and has the sole power to spend the money of the corporation.

Various others have mumbled that, well... the FDAL doesn't do much anyway. As with any position in student government, the FDAL has as much importance as the

holder of the office is willing to give it. Currently, the duties of the FDAL and Upperclass Director at Large are flexible, to be specified by resolution of the BoD. The BoD has declared that the main duty of the FDAL is to maintain contacts and relationships with the clubs on campus. If he or she chooses to work hard and fulfill this specification, this could be a very powerful and demanding position: talking to the active clubs, working out funding arrangements and coordinating events.

But even if the FDAL didn't do much anyway, the importance of the FDAL as a full member of the BoD—capable of making motions, discussing and voting—cannot be ignored.

Others justify destroying the FDAL by pointing out that freshmen can run for any office on the BoD anyway. First, freshmen can't run for president or vice president; only current sophomores and juniors can. Second, the chances of a freshman earning more votes than a sophomore or junior for any other office are slim, for understandable reasons. Many more people have had a chance to meet and get to know upperclassmen. Common sense and history agree that even a popular and well-respected freshman has little hope if an upperclassman wants the job.

In a well-intentioned effort to improve ASCIT, these amendments do the opposite, taking away freshman representation on the BoD. Removing that "good diversity" is more than "somewhat unfortunate;" removing that "good diversity" unacceptably excludes a quarter of the student body.

'Words Matter' Writing Seminar Set for Spring

By MARK WHEELER

Every field of science has its own language, every scientist a way of speaking that, unless you are in the know, is packed with jargon and mystery.

To help tomorrow's scientists explain to us what they do, Caltech will present a science writing symposium the Monday after next, from 4:30 to six p.m. The event will take place in Baxter Lecture Hall on the Caltech campus.

The symposium is part of the institute's Words Matter project, which is intended to foster a culture of literacy at Caltech, cultivate students' interest in writing in its varied forms and help undergraduates appreciate the many ways in which words, indeed, matter.

The symposium is open to the Caltech community and to the general public, but is especially intended for Caltech juniors who are all writing science papers aimed at an audience level of college-educated, general readers.

Panelists for the symposium will include Cornelia Dean, science editor at the New York Times, Usha McFarling, a science reporter with the Los Angeles Times and David Goodstein, vice provost, professor of physics and applied physics and Frank J. Gilloon Distinguished Teaching and Service Professor, who has written on science and society.

The symposium will be moderated by freelance author Russ Rymer, who is a former Caltech science writing instructor. Panelists will describe their own work and discuss the challenges of communicating science and technology to nonspecialists. Following their talks, audience questions and comments will also be welcomed.

Words Matter, a new Caltech initiative, offers undergraduates frequent opportunities for close contact with accomplished writers. Funded by the President's Office and guided by a committee of stu-

dents, faculty and administrators, the project has three components: a writer-in-residency, the annual science writing symposium and a small-grants program to bring other, typically lesser-known authors to campus for one-time readings or class visits and to support student publications.

Last November, the Irish novelist and poet Seamus Deane spent several days on campus, interacting with students and faculty. Deane is one of the most wide-ranging and distinguished figures in contemporary Irish literature and culture. In early April, science writer, essayist and novelist Alan Lightman will be the writer-in-residence. His novels include *Einstein's Dreams* (1993), *Good Benito* (1995), *The Diagnosis* (2000) and the forthcoming *Reunion* (July, 2003).

During his stay, Professor Deane held discussions with students who last year had taken "The Irish Voice"—a course on Irish literature and history—and spoke on his novel, *Reading in the Dark*, with students from Dabney. He also met with tutors from the Hixon Writing Center, discussing methods of editing and revision. Later, he paid a visit to "Writing Fiction: The Imaginary," taught by Professor in Humanities Judith Hall.

Words Matter is coordinated by Steven Youra, director of the Hixon Writing Center and Caltech Communications Program. In Dr. Youra's words, "The Science Writing Symposium will help our students understand how to communicate complex technical information to broad audiences. This symposium and other Words Matter events will raise students' awareness and appreciation of good writing by creating opportunities to engage with a range of accomplished authors from the realms of literature and the arts, as well as the sciences."

Sleep, Stress, Vegetables On Tab For Health Education Committee

Continued from Page 1, Column 2

ness of ingredients, the quality of the food preparation in cafeterias on campus, the healthfulness of the food and the food service itself. Though Caltech hires a registered dietician part time, students worry about the levels of salt, grease and fat in the food. In addition, vegetarians are concerned that animal oils and fats may be used in the preparation of their meals.

Dr. Curtis has been working with Tom Mannion, director of Caltech Auxiliary and Business Services, Melissa Wettengel, Student Board Program manager, as well as the house food representatives to try to reform parts of the menus.

The recent student petition to allow people on board to eat dinner at Avery once a week reflects concerns about decreasing choice in dining. Both graduate and undergraduate students dislike the lack of kitchen space and food storage areas in the houses. Students wish that more fresh food was sold at the convenience store and that cafeterias were open at times that are more accessible to the on campus population.

Additionally, four out of seven undergraduate houses have expressed interest in cooking lessons and the Graduate Student Council is already planning a set of lessons. In response, Dr. Curtis hopes to show students how to make quick, healthy meals for a low price and is working with a chef and a local culinary arts school.

The Student Advisory Council will also help to plan the annual campus health fair slated for April 18. This year, students will most likely enjoy the chance to interact with representatives from Yoga House, Wild Oats, a vitamin company, a dermatologist, a sports medicine group, REI and several other popular health-oriented companies.

Additionally, Dr. Curtis hopes to talk to a massage school and have

a climbing wall available. Suggestions for other events are encouraged and Curtis has an additional council to help plan this year's fair.

In the future, Dr. Curtis hopes that the SAC will continue to see her as a resource to voice concerns to the administration, to get good information about health issues and to help other students see how health influences life at Caltech and beyond. She knows that habits change in small increments, but that any small improvement contributes to overall better health. Dr. Curtis also aims to decrease the lack of trust and understanding between undergraduates and student affairs professionals.

"We have a lot of student affairs professionals who are dedicated, educated and trained at other schools to make student life better," she said.

In fact, the SAC has received much support from administrators. The student affairs department provides a budget for meetings and events. Additionally, officials have seen flyers and have expressed approval of a recently created forum aimed at monitoring student opinion directly and often.

The SAC was conceived in response to a need for student opinions on campus health education issues. In the past five years college campuses have begun to advocate health education programs in an effort to prevent problems before they happen. Peer educators, known

as health advocates, have been on Caltech campus for several years.

The SAC, Caltech's group, currently consists of eight undergraduates and three graduate students representing the Catalina Apartments, Braun graduate house and six undergraduate houses. Students volunteered for the position in response to the flyers posted around campus. When asked why they joined the group, several members responded that they want the students' voices to be heard and that campus health issues need higher priority.

Looking at the big picture of health in terms of emotional, spiritual, social, intellectual and physical dimensions promotes a sense of balance in a student's life. Curtis hopes to present students with fun, easy and positive ways to stay healthy that have immediately noticeable results.

To this end, Dr. Curtis plans to continue her pattern of entertaining both scheduled appointments with students and random visits during her daily "drop-in" counseling hours on Monday, Tuesday and Thursday. In the meantime, she will continue to provide free pamphlets, handouts and condoms on her health panel across from her office.

About student enthusiasm, Dr. Curtis expressed optimism. "The hunger is here for students to get involved in improving campus health," she said.

PHOTO OF THE WEEK



D. Korta/The California Tech

Jane Curtis and the Health Education Student Advisory Council will be planning the annual campus health fair which will occur on April 18.

Letter: Class Offers 'Tool Acquisition'

Continued from Page 4, Column 5

benefit analysis if they spend too much time on the last, most difficult or time-consuming part of a homework set.

If a student spends, say, four hours on doing 80% of the homework and then spends another four hours on the remaining 20% that is giving difficulty, is this a good use of time? Sometimes yes, but often no. There might be merit to going to sleep and attending lecture rather than struggling over the last bit.

My second point is more substantial but less easily quantified. It has to do with what one should seek from an education. A Caltech education is in large part tool acquisition. Tools include things such as

Fourier analysis or organic synthesis. Homework and lab work forces you to develop an ability to use these tools. However, knowing how to use a hammer includes knowing which things to hit. Homework typically does not teach the broader context of science that enables you to decide which things are worth hitting and where or when to hit them.

The menu requirement in the core curriculum is an example of a requirement that I would hope teaches students about the broader context in which their skills can be applied. I would suggest that this broader aspect is more commonly imparted in lectures than some students are willing to admit and they don't immediately notice this because they

are defining what they want to get out of a class by the homework they are assigned.

To be sure, this may be partly the fault of the instructor. Caltech is failing its students if the activities that generate grades play an excessive role in defining the education. The faculty are not smarter than the students but through experience they might know something about education that the students do not.

A professor could decide through application of cost-benefit analysis that it is in the best interests of the student to change the pay-off matrix so as to induce attendance—with pop quizzes, for instance. Does the student possess the information needed to assess whether this is the right thing for the professor to do? Probably not. It may be unpopular but that's irrelevant; teaching should never be a popularity contest.

I think the biggest problem with teaching at Caltech is that we are insufficiently distinct. If Caltech is merely teaching the same stuff you get at a large state institution, but at a faster pace and with a greater volume of homework, then we are failing in our task. This is a challenge for the faculty, but the students can help through a recognition that correct application of cost-benefit analysis might require a change in the behavior of some students.

David Stevenson
Professor of Planetary Science



Courtesy of the World Wide Web

Planetary Science Professor David Stevenson disputes the idea advanced by Jialan Wang '04 that students can perform a fair cost-benefit analysis of the advantages of lecture without attending.

Director at Large Could Reopen Communication

Continued from Page 6, Column 2

they go to their meetings, not even anyone that makes sure we have the right number of representatives on each committee.

So is that a real problem? Consider some of the committees that been formed in the past few years. There was a committee called the Task Force for Undergraduate Residence Life Initiatives—a committee that had student representatives, but somehow managed to spark a student protest. There was a committee called the Library Task Force, whose recommendations were largely ignored. There were also numerous committees that had no student representation that took away freshman parking spaces, canceled the student bartender program and chose Richard Serra to design a work of art. The one thing all these committees had in common is a lack of communication with the student government and the student body at large.

The proposed Director at Large would serve as that point of communication, placing students on committees where they are needed, serving the needs of the student representatives and bringing important news to the student body. These committees are where the most important issues have arisen in the past few years and where they will arise in the future.

Some people will try to frame this Bylaw in an ASCIT-versus-IHC light, but those issues have been settled through compromise between the current ASCIT BoD and IHC.

Please talk with a BoD member or your house president if you have questions. This bylaw is about strengthening our side on the students-versus-administration battlefield and if it fails due to student-versus-student conflicts, the students all lose.

'Alternative' Teams Break To Utah, San. Fran., Mexico

By SUSAN AYER and
KATIE HOMANN

The Caltech Y is sponsoring Alternative Spring Break trips to Tecolote, Mexico from March 23 to 26, the Navajo Nation in Bluff, Utah from March 23 to 28, and San Francisco, from March 23 to 27. Y organizers call the trips a great chance to experience new places and cultures, meet new people and make a difference.

This is the fifth year of a trip to Tecolote, a town south of Tijuana, Mexico. In past years, volunteers stayed in a community center and did projects to help the surrounding area. Past projects have included tiling floors, clearing a vacant lot for gardening, planting trees at an orphanage, installing fences and teaching children.

ENSMINGER PROBES ECON. WITH GAMES

TO PRESENT BEHAVIORAL STUDY

Continued from Page 3, Column 3

was appointed chairperson of the humanities and social sciences department last spring. Despite the job's demands, they have not dimmed her continuing experimental research efforts.

The forum is a continuing series presented by Schiff, who represents in Congress the district that includes Caltech. Area math and science students and their teachers, both from surrounding high schools and the community colleges, will be making the trek to campus to hear about cutting-edge research at one of the country's premier institutions.

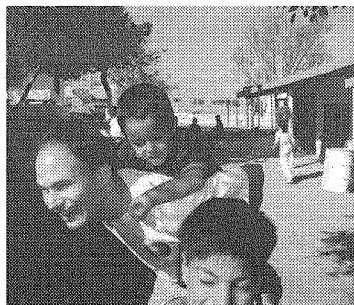
On the trip there are opportunities to explore the local town, practice that high school Spanish and buy food from the local taco stands—which really beats out Taco Bell, many students say. There is also a trip to the border to hear about border issues from a Mexican perspective. It is not necessary to know Spanish to go on the trip.

For its second year, the Y is taking a trip to the Navajo Nation in Bluff, Utah. Volunteers for this trip will help the families of the Navajo Nation by painting and fixing up houses. While on the reservation, they will stay at a local school and have a chance to interact with the community. Volunteers will also have the opportunity to learn more about the Navajo culture by participating in a sweat lodge, witnessing a pow-wow and sampling some authentic Navajo cooking.

San Francisco is a new trip this year. It is a great opportunity to see the city and gain a new perspective. Volunteers on the trip will explore urban issues such as homelessness and AIDS by working with San Francisco organizations.

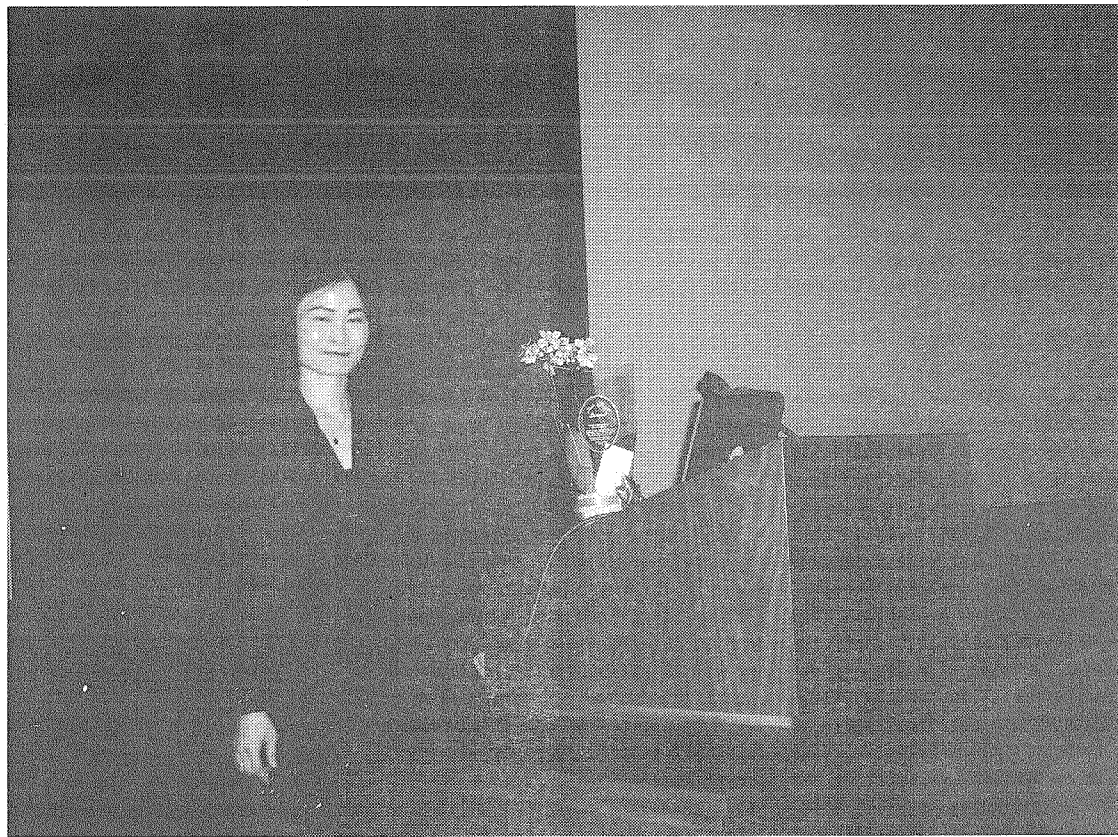
The trips are open to undergraduates, graduate students, faculty and staff. Signups start at a meeting next Friday and trips usually fill fast. The trip qualifies for federal work study at \$15 per hour for those who are eligible.

This spring break, students on this trip will be more than tourists; they'll go out and make a difference!



Courtesy of the Caltech Y

Students participating in last year's Alternative Spring Break paint and fix up a house located in the Navajo Nation in Bluff, Utah.



J. Foster/The California Tech

In her Watson lecture last Wednesday, Nai-Chang Yeh describes how new high-temperature superconductors can be made by doping the copper-oxygen materials with other atoms.

From Neutron Stars to SQUIDs, Developments in Superconductor Research Show 'Resistance Is Futile'

By JON FOSTER

What do neutron stars, trains and quantum computers have in common? They are some of the varied objects and inventions which are influenced by superconductivity.

"Superconductivity—Resistance is Futile" was the title of Dr. Nai-Chang Yeh's Watson Lecture Wednesday evening at Beckman Auditorium.

She started her talk on an unusual tangent, describing in detail the nature of the Borg in Star Trek.

"If you think... this is fictitious, I am here to tell you that you are wrong," she joked as she showed a picture of Bill Gates crossed with a science-fiction "Borg." Dr. Yeh soon explained however that the title of her talk was not intended as a jab at Microsoft, but rather as an explanation of superconductivity.

Superconductors, which have been known since 1911 and took a major leap in 1986 with the discovery of high temperature superconductors, are objects in which electrical resistance drops to zero when cooled below a certain temperature. This basic description misses some of the wealth of phenomena seen in superconductors, though.

The expulsion of magnetic flux, the quantization of any flux trapped inside a superconducting ring and quantum interference are some of the slightly less-well-known areas of superconductivity research.

Despite the wealth of scientific work on superconductivity—Yeh noted that four Noble prizes had been awarded for work in this

field—and the fairly significant number of applications, the most impressive being the Maglev trains under development in Germany and Japan, superconductivity remains a rather mysterious field.

The standard theory for what happens in normal superconductors is well understood, but basic information about High-Temperature Superconductors remains scarce.

"And if you think this is fictitious, I am here to tell you that you are wrong."

Bardeen, Cooper and Schrieffer developed the BCS theory that explains superconductivity as the formation of Cooper pairs. Cooper pairs are two electrons which become coupled through an interaction with the lattice. As a pair, the two electrons act as a boson, which means they no longer have to obey the Pauli exclusion principle and thus condense into the ground state.

Yeh described a Cooper pair as a dancing couple. The Cooper pairs then settle into a phase coherence or as Yeh put it, they are assimilated into a phase coherence, hence the name of the talk. An intuitive picture of this is picturing the entire material like a ballroom with many pairs of waltzers (Cooper pairs) in it, the individual couples all move in a coherent way and the dance

proceeds smoothly without resistance.

BCS theory predicts a maximum temperature of 30 to 40 degrees Kelvin above which superconductivity is impossible. The discovery of high temperature superconductors at much higher temperatures was something of a shock. These materials have copper-oxygen planes in them and act as insulators at high temperatures. Doping them with other atoms and cooling them produces a shift to superconductivity.

Yeh's group has done a significant amount of work characterizing these substances and Yeh feels that a description will necessarily include many "competing orders" of effect. She compared the high-temperature superconductors to Europe, which has many competing forces, versus traditional superconductors explained by BCS which are like China, one dominant phenomenon.

At the end of her talk, Yeh introduced us to some of the fore-fronts of superconductivity research: the superconductivity believed to exist in neutron superfluids in the cores of neutron stars, the promise of Superconducting Quantum Interference Devices (SQUIDs) as QUBITS for quantum computers and the excitement over the relatively recently discovered new superconductor, Magnesium Diboride, which has a number of particularly nice properties.

Her zeal for the topic could make one believe that she was hoping to assimilate the entire audience into superconductivity researchers.

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