



BoD Sets Budget For Record 63-club Field

By RYAN OLF

A few weeks ago, the ASCIT BoD disappeared to Tom Mannion's house to settle next year's budget once and for all.

One of the most salient and immediate results of the day-long meeting is the final decision as to which clubs will be funded and how much money they will receive. Of the approximately 130 clubs registered with ASCIT, 63 requested funding from the organization and 53 had their requests granted.

The money is distributed to the clubs over the course of a year on a term-by-term basis. One humorous side-effect to distributing funds in three installments is the granting of awkward amounts such as \$201 per anum, the extra dollar added to make the sum evenly divisible by three.

The number of clubs that didn't receive funding increased dramati-

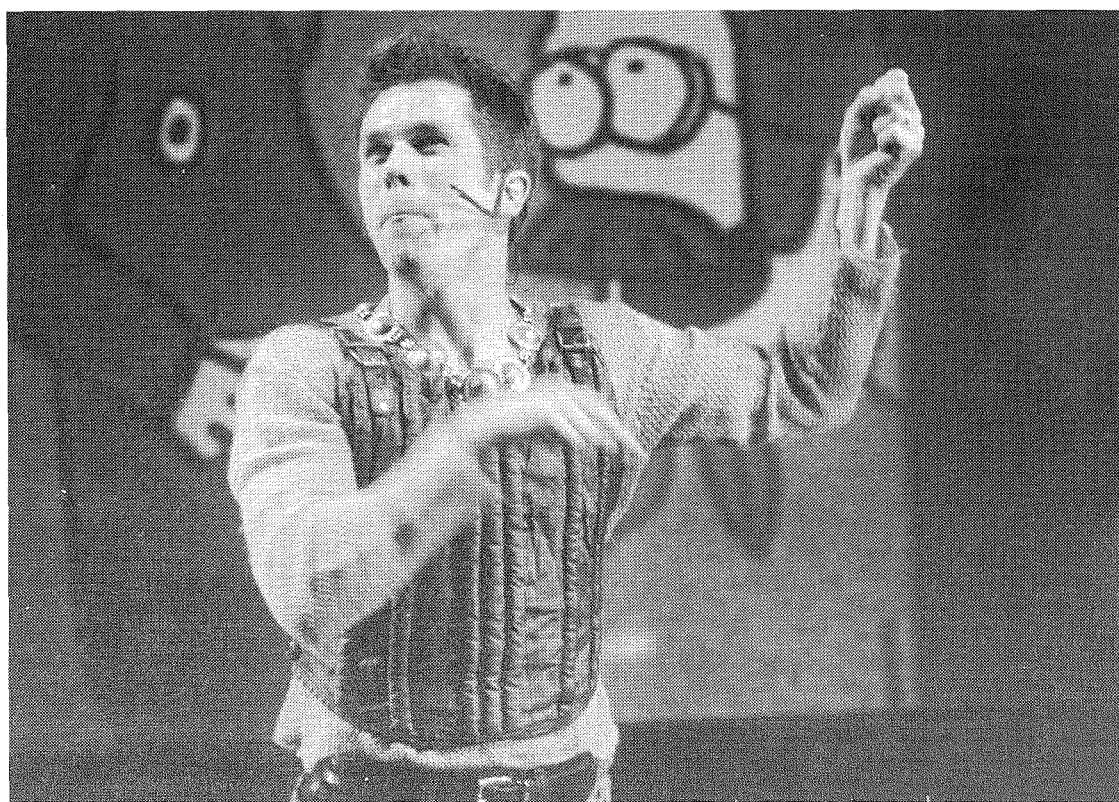
cally, from only one last year to ten this year. Corinna Zygourakis '06, who as FDAL is the BoD's club liaison, explained that the increase in non-funded clubs was due to the fact that "about twice as many clubs applied for funding this year [63, as opposed to 41], with the entire budget already reduced \$5,000. If you do the math, it doesn't work out." Unfortunately for the BoD, deciding how much money a club will receive is not a cut-and-dry process.

"We don't have formulas for deciding how much money a club will get based on the proposals. We have to get a feel for the club—it's a very touchy-feely process," remarked ASCIT President Tom Fletcher '04. Indeed, many BoD members reflect that there are a lot of intangible factors that influence their budgeting decisions.

Nonetheless, there are certain steps a club must take to even be considered for funding. The first step involves registering on donut.caltech.edu before a certain deadline, which is usually at the end of second term.

Former Treasurer Janet Zhou '04 reminded students that requiring a club to register on *donut* assures that the club is accessible to the Caltech community, "that all clubs are active, that the contact information is up-to-date and that clubs receive important updates." Additionally, a club is asked to submit a funding proposal, a list of events, a budget from the previous year if one

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D. Korta/The California Tech

Actor Rick Miller combines the theatrics of Shakespeare's *Macbeth* with the comedy of *The Simpsons* in his one-man show, *MacHomer* last Friday.

Actor Links Homer, Macbeth in One-man Show

By O.J. CARLTON, IV

The concept is foolproof: take a play that's so renowned that no critic in his right mind would attack it and cover all the *dramatis personae* with characters from a television show that's at least ten times as popular

The sum of the works of two of the greatest creative minds of all time, Matt Groening and William Shakespeare, could not possibly result in anything short of brilliance. Starring the theatrical talents of Rick Miller and no one else,

MacHomer provides the audience with impeccable *Simpsons* impersonations, hilarious and convincing acting and a sophisticated use of multimedia. The end result is a creation that transforms the Scottish play from a tragedy into a sitcom, without losing respect for the masterpiece.

News Analysis

The fact that he manages to preserve the dignity of both *Macbeth* and *The Simpsons* is a testament to Miller's outstanding vocal talents. Characters drawn from all over Springfield are imitated in a manner that is acutely precise in sound and true to the their

personalities. From the half-gargled nagging sigh of Lady MacHomer (Marge Simpson) to the evil yet senile tone of Duncan (Montgomery Burns), Miller has virtually all of them nailed. Although I was skeptic going in to the performance, I was amazed at the level of professionalism with which the *Simpsons* universe was adapted and presented. Instead of a vague, somewhat condescending resemblance to the voices, Miller encompasses the spirit and image of each one.

There were a few characters whose imitations could have been better, notably Bart and Lisa Simpson, who had only minor roles. Originally cast as Fleance, Bart actually rejects the part, causing an on-the-spot tryout process to commence. Eventually we are left with Rod Flanders handling the role, whose innocence is every bit as annoying on stage as he is in cartoon form. However, in virtually every other instance, the character speaking is immediately recognizable to a dedicated *Simpsons* fan, but for the sake of the unenlightened, Miller provides pictures of each cartoon character when introduced, along with the name of the role that character played.

Surprisingly, the quality of the drawings flashed on the screen rivals that of the original animators. It's something of a miracle that Miller has been able to take the show on tour for six years without getting sued. *The Simpsons* is one of the few consistent money-makers in the Fox arsenal; it's surprising that an actor can borrow their trademarked catch phrases and even their images and make a profit in the process. However he does it, more power to him, because he does it extremely well.

The pace of the performance is at times faster than most American audiences can handle. In the span of a minute, Miller can seemingly go through five different characters, each with different accents, facial expressions, voices and nonverbal noises. Unfortunately, sometimes I seemed to detect delay in the transition between different characters' voices, but this problem may due more to my mind being slow than to Miller's voices. Perhaps there's also a lag due to the physical limitations of the range of the human throat, especially when switching between characters with radically different speaking styles.

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ALVAREZ AIMS TO WARD OFF VOTE ERRORS

PROF. ANALYZES VOTE MACHINES

Assesses Post-Florida Possibilities For Improvement

By JON FOSTER

Chad. Butterfly Ballot. Florida 2000. Repeat *ad nauseam* on network television and the Internet for hours and then days and weeks after we thought the election should be over. What if there could be a system that would spare us from ever going through that pain again?

Michael Alvarez, professor of political science at Caltech, although profoundly realistic about the challenges involved in creating a better voting system, is still hopeful that improvements can be made—improvements that in some cases have already been made. He spoke of the current flaws and future hopes of the American's voting system Wednesday night in Beckman Auditorium as part of the Watson Lecture Series.

Florida 2000 was the starting point. Nearly 200,000 ballots were not counted for one reason or another and President Bush won by

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Bevy of Activities Marks Slim Prefrosh Weekend

By JENNY IOFINOVA and ARTHI SRINIVASAN

This past weekend, students accepted to Caltech came to the campus to participate in Prefrosh Weekend. The prefrosh, the bulk of whom arrived on Thursday, stayed on the floors and couches of their hosts, who were students living in one of the seven houses. The prefrosh participated in various activities designed to acquaint them with life at Caltech and with students who go here.

The administration had several activities designed to tell the prefrosh more about life at Caltech as well as opportunities the school

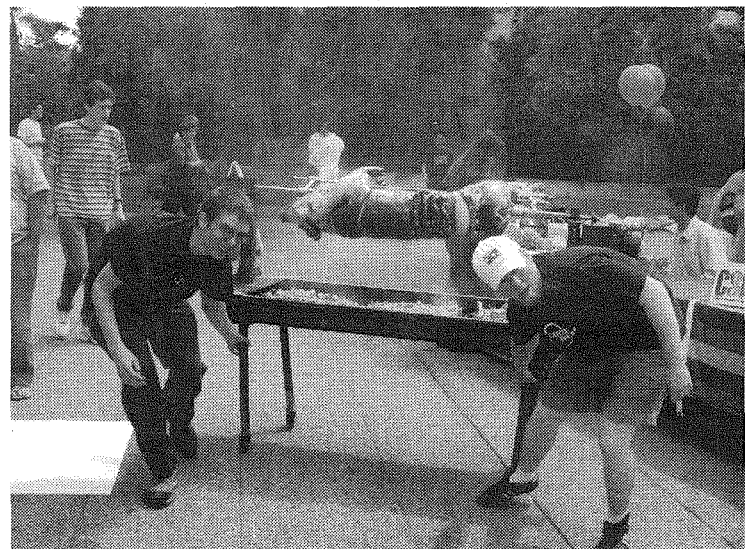
provides. These included campus and lab tours, a program for women in math, science and engineering, a talk about the pre-med program, discussions of research opportunities and life after Caltech and a club fair. The prefrosh were also given a schedule of classes that were scheduled for Thursday and Friday with recommendation for classes which would be representative of the ones they would take freshman year should they come here.

Each of the seven houses, as well as Avery, also planned activities for the prefrosh. On Thursday night, Page had an ice cream sundae party, Avery had a rocket-powered

egg drop and Blacker had a midnight ultimate frisbee game. Many of the prefrosh attended these events and had a chance to talk to each other, as well as talk to students in the houses about experiences that they had at Caltech. They also enthusiastically participated in midnight donuts by ASCIT on Thursday night. Sadly, the students and prefrosh who attended Forster's Thursday night Ph 1b recitation were too late to get a strawberry one.

On Friday, a barbecue lunch was attended by many prefrosh, who were very impressed by both Ecphonema and Out of Context, both Caltech *a capella* groups. In the afternoon, Dabney had a tie-dye and graffiti party, where the prefrosh were invited to decorate their white Prefrosh Weekend T-shirts. At night, they played minia-

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D. Korta/The California Tech

During the prefrosh club fair last Friday, members of the meat club roast a pig to spark interest and promote their organization.



D. Korta/The California Tech

Chess Master Patrick Hummel '06 gives a "simultaneous exhibition" for the prefrosh, playing approximately twenty opponents on Fri.

Macbeth Today: Starring Miller as Homer Simpson

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Another impressive feat is the actor's synchronization with the multimedia; music, video and sound effects are timed precisely with the performance via a custom DVD. While the use of automated effects may be considered cheating to one-man-show purists, it proves invaluable background information on the scene and setting of the play. Without this visual information, those of us who haven't read Macbeth in a few years would have had a much harder time keeping up with things.

I'm sure that had I managed to reread Macbeth before attending the performance last Friday, I'd have been able to catch any number of clever adaptations of the script. MacHomer weaves in and out of the script so much that the viewer at times doesn't notice when ridiculously out of place lines are inserted into the Elizabethan text. My personal favorite comes at the end of an especially well-metered

soliloquy when MacHomer does Homer's drool-voice and declares "Mmmm... iaambic pentaameter." It's funny, not only because it's true, but because it's exactly what Homer would say there.

In addition to the play itself, the audience is treated to two additional performances. In the first, the Simpsons sing "We Are the World." This song would be impressive by itself, but after an hour of Simpsons impersonations, the audience is both fully convinced of the man's Springfield adapting abilities and tired of hearing them. As an encore Miller presents twenty-five of the world's most annoying recording artists, chosen by him, singing "Bohemian Rhapsody." While the artists chosen may be a few years out of date, the ones I recognized were extremely well impersonated. The Mick Jagger dance alone makes the whole evening worth it.

I give it four-and-a-half inanimate carbon rods out of five.



Actor Rick Miller brings *Macbeth* to life with a *Simpsons* twist. He performed Friday in Beckman Auditorium for an enthusiastic group.

D. Kotta/The California Tech

Peterson Pleads, Santorum Faces Criticism

By PHIL HARRIS

Peterson Pleads Innocent

Scott Peterson pled innocent last week to a double-homicide charge that he killed Laci, his wife and her unborn son Conner. Peterson was arrested the week before last after the body of his wife, missing for four months, washed up on shores near Berkeley, California.

Since Laci's disappearance last Christmas, authorities' hunt for the perpetrator has focused on her husband. Police followed Peterson as he tried unsuccessfully to sell off his former wife's property and car, left to live with his parents and ultimately, after a suspicious decomposed body turned up near the bay in which he claimed to be fishing that fateful Christmas, travelled to San Diego in an apparent plan to flee to Mexico.

Peterson had visibly changed his appearance at the time of his arrest, sporting a tan and a new cut with bleached-blond hair. He originally blamed the change on days spent relaxing on the beach, but retracted the story after an area salon artist responsible for his change in appearance came forward to debunk his story. Peterson also had \$10,000 in cash on his person.

Nationwide, pundits and even some authorities have already tried and convicted the Modesto man in the court of public opinion. A local DA called the case a "slam dunk" and prison officials had to move Peterson to a private cell cordoned off from the rest of the prison after it became apparent that he faced violent threats from other inmates.

Still, Peterson's parents have been his most visible supporters. In a blistering assault on law enforcement personnel, whom she argued passed up numerous other leads to dig up information on Peterson, his mother compared his present situation to a trial in Nazi Germany or the Soviet Union. Still, neither parent has put up the money for an attorney; Peterson told the court at his arraignment that he could not afford an attorney and the judge in response appointed a public defender in his case.

Peterson's next hearing is set for late May.

Santorum Under Fire

Pennsylvania Senator Rick Santorum came under fire last week for comments tagged as bigoted comparing sodomy to incest, polygamy, bigamy and adultery in an interview with the Associated Press.

Calls for resignation of Santorum, a Republican, came quickly from Democratic opponents and television punditry. But whereas fellow Senator Trent Lott faced widespread criticism from his own party ranks after he said at a birthday party that the country "wouldn't have had all these problems over all these years" had retiring senator Strom Thurmond been elected when he ran for president nearly 50 years ago on a pro-segregation "Dixiecrat" platform, Santorum has in contrast enjoyed broad support from fellow Republican lawmakers,

which has upset civil rights advocates. President Bush himself called Lott's comments "a black mark," but now defends Santorum as an "inclusive" man, per a

JUST-FINGERED 'DAHLIA' KILLER A CIT DROPOUT

MURDERER MATRICULATED AT 15

Serial Killer Dropped Out of Caltech To Open Practice

By PHIL HARRIS

After posthumously perusing his father's photo albums and personal documents, ex-homicide detective Steve Hodel has come to the conclusion that his celebrity father, a child prodigy with an IQ greater than Einstein's who matriculated to Caltech in 1939 at the age of 15, was the infamous 1947 "Black Dahlia" murderer responsible for the deaths of Elizabeth Short and likely scores of other women.

Hodel last month released a book detailing his conclusions, based on records he found of incriminating notes and photographs linked with taunting messages the killer is known to have sent police after he carried out his crimes in the '40s.

George Hodel dropped out of Caltech in 1942, his junior year, to become a newspaper reporter on—ironically—the local crime beat. Four years later, he put himself through medical school at Berkeley working as columnist for the *San Francisco Chronicle*. He went on to open a practice on a Navajo Indian reservation in Arizona before returning to Los Angeles and opening his own venereal disease clinic in Hollywood catering to the area's rich and powerful actors. He had a torn relationship with the 22-year-old Short before murdering her.

He is the only known serial killer to have attended Caltech.

Alvarez Discusses Pros, Cons of Internet Voting

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only about 500 votes. Dr. Alvarez is coordinator of the Caltech/MIT Voting Technology Project, which looked at this election and found that there were significant problems that had nothing to do with butterfly ballots or hanging chad. These included long lines and breakdowns at some polling places and serious problems with the voter registration program.

The Voting Technology Project spent a lot of time collecting statistics on what sort of voting mechanisms produced the fewest votes which were not counted for one reason or another. The worst machines used punch cards, followed by purely electronic, paper, optically scanned and lever systems.

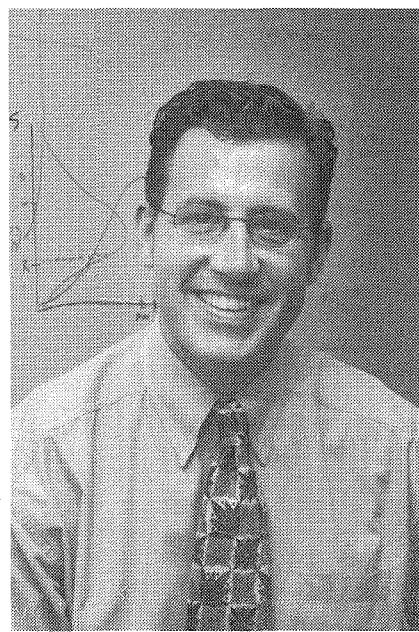
Lever systems, ironically the best performing since there mechanical operation physically prevent overvotes are also the systems being most quickly replaced, as old machines break down without replacement parts and modern elections require a larger number of options than can be easily accommodated by these machines.

The project found the failure of electronic systems surprising, but also that many of the systems in their analysis were older machines and speculated that more modern systems might fare better.

Optical-scan systems and electronic systems are the wave of the future; in the last two years the state of Georgia switched entirely to electronic touch-screen voting. The quick transition did introduce some problems, though; some polling places were without the electricity necessary to run that machines. But machine improvements by themselves are not enough.

The project estimated that nationwide in the 2000 Presidential election, six million votes were lost out of 100 million cast. They figure that one million were due to problems at the polling place, two million due to problems with machines and three million to registration problems.

The registration issue is obviously a huge one. The "Help America Vote Act," signed into law in October 2002, provides a time frame for several critical registration provisions. All states will have to have a computerized state wide voter registration database, require an ID to register and allow provisional voting; voters not on the registration



Courtesy of caltech.edu

Political Science Professor Michael Alvarez coordinates the Caltech/MIT Voting Technology Project.

list may fill out a provisional ballot which will be checked against a more central database to determine whether it will be counter.

Provisional voting brought Alvarez to the topic of increasing the convenience of voting. This includes voting by mail, opportunities for early voting, disability access and help for language minorities and overseas citizens. The worry with any convenience measure is that it raises the possibility of increasing voter fraud.

Fraud is a huge issue for Internet voting, which Alvarez thinks is a "natural transition" for elections. Already overseas citizens have used the Internet to register and vote and Internet voting has been used in primaries in Alaska and Arizona.

The pros are obvious: better access for disabled and overseas voters, lower costs and the elimination of problems associated with polling places. The biggest problem is security, although there are also worries about the digital divide and the erosion of civic values.

There are no easy answers to security. How do you insure that no one is compelling an Internet voter to vote one way or another? How do you make sure no one is manipulating the central database? How do you protect the system from denial of service attacks? These questions must be answered, but as integral a part of our lives as the Internet already is, Alvarez is sure that they will be solved and one day we will be casting our votes over the Internet.

NFL Football Possibility For Pasadena Rose Bowl

By TAMMY MA

The Rose Bowl has long been a representative symbol of the city of Pasadena and home to the University of California, Los Angeles, Bruins football team.

Last August, city officials hired sports broker John Moag, the man credited with moving the Cleveland Browns to Baltimore to give a presentation to the National Football League about bringing the NFL to Pasadena. Moag and Councilman Steve Madison are devising the financial and architectural plans for the Rose Bowl.

The NFL deal was proposed as a realistic solution for the stadium's future. Should another football stadium be built in Los Angeles it could steal business and possibly UCLA.

Both David Davis, the tournament's Executive Vice President and Tournament Executive Director Mitch Dorger said the city's NFL proposal remains too

conceptual to fully analyze. However, there are a few givens that raise concerns among Tournament of Roses officials.

First and foremost is that Tournament officials are "now faced with the potential that their collegiate, provincial tradition will run head-on into the corporate, billion-dollar business of professional football," states Gary Scott, Staff Writer for the Pasadena Star News.

Besides the construction obstacles of fulfilling NFL seating requirements and preserving the historic Rose Bowl, it would also cause scheduling problems for the Tournament and UCLA during the football season. During the approximately 23-month construction period, the UCLA Bruins would have to find another venue at which to play their home games.

The proposed design has so far been well received.

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Caltech 40-58, Pasadena, CA 91125
editorial desk: (626) 395-6153
advertising desk: (626) 395-6154
editorial e-mail: tech@ugcs.caltech.edu
advertising e-mail: business@tech.caltech.edu

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Tammy Yee Wing Ma Vi Tuong Tran
Managing Editor Business Manager

Kevin Carl Bartz Circulation
News Director Chris Crabbe

Leo C Stein Tearsheets
Commentary Editor Tim Tirrell

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Where
in the
World
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Progress Attained Through SFC, Transparency and Prefrosh Week

By TOM FLETCHER
Good-bye Prefrosh!

They were gone before I knew it... grumble... short Prefrosh Weekend. However, despite the brevity of the weekend, I met a number of prefrosh who seemed like they would have a lot of fun at this school. I really enjoyed playing pool with Daniel, who's not coming, and Dan—he's coming!—and I think we'll have an excellent class next year. And now, to end the in-flight magazine segment and talk on more substantial matters...

One thing that impressed me a lot about the prefrosh I met was their openness to the diversity of the Caltech community. I spent most of my Prefrosh Weekend hanging out with some friends, a number of whom are gay and were being rather openly gay. Most prefrosh have probably not dealt with this issue in their high schools or personal lives, but they handled it exceptionally well. This got me thinking more generally about our community and how lucky we are to have such an accepting community, especially in light of remarks in the press by Senator Rick Santorum. At a time when the dialogue of the nation seems to have taken a large step backwards, it is very comforting to think that at Caltech, we have made such tremendous progress.

Whom did I meet with this week?

The only meeting I had this week was with Margo Marshak. She was very glad to know that the Interhouse Committee and ASCIT had chosen our representatives on the Moore Gift Committee and they will soon go to work on spending that money to improve student life. They have about \$130,000 per year to spend, so if you have ideas, pass them along to Will, Helena or Jason!

We also went over some details

of the reports presented at the Student-Faculty Conference for her presentation to the trustees this week. The entire administration was very impressed by our efforts and are looking forward to how we follow up on the conference. On her side, Margo's report to the trustees on student life is the first push to make some changes. On the faculty side, the committee investigating the dean of undergraduate education that was emphasized at the conference is meeting regularly and preparing its recommendations. That leaves us, the students. In ASCIT, we are starting to think about what we want to accomplish at the next Student-Faculty Conference two years from now and starting to plan our followup. I also followed up on a number of issues: the fire pot was not on the agenda of the last PMC meeting.

There was also a faculty board meeting last week. The agenda was supposed to focus mainly on student affairs, but Margo Marshak postponed her presentation until next month and the Student Housing and Convocation committees also postponed their presentation. The only thing that actually happened were some cosmetic changes to the catalog and that next month the faculty will consider the creation of a Control and Dynamical Systems minor, for all of you who actually want to take more Caltech Dining Services.

And Yet More Transparency

Based on past lack of representation on faculty committees by students who were delinquent in attending, ASCIT is trying to come up with a reporting mechanism to ensure that the students will remain well represented on committees. One idea that is being kicked around right now is to have committee members write a meeting summary of every meeting they at-

tend for posting on either the ASCIT Web site or in the Tech to guarantee that we all stay well-informed about what is going on at

Caltech, obvious exception being confidential committees like UASH. If you have other ideas on ways to make student representation on committees more effective, please send them to me, or write to the Tech with them.

Also, please remember that we will be back on the Olive Walk as scheduled this Wednesday, weather permitting, so if you've been missing your ASCIT excitement, you can get it once again!

Moment of Zen

Synchronicity: Einstein shows up in a lot of song lyrics. Since I long ago gave up eating for music, I found some of them. The moral: there is none. It's the moment of zen. The only consistent lesson of this section is that music is universally good.

"Albert Einstein was a ladies' man,

While he was working on his universal plan,

He was making out like Charlie Sheen,

He was a genius."

"Genius," Warren Zevon

"Einstein, disguised as Robin Hood (With his memories in a trunk (Passed this way an hour ago (With his friend, a jealous monk (He looked so immaculately frightful (As he bummed a cigarette (Then he went off sniffing drainpipes (And reciting the alphabet."

- "Desolation Row," Bob Dylan

Peace,

Tom Fletcher
ASCIT President

P.S.: Dear Rick Santorum, close your eyes. I like my privacy.

Fireside Chat

Armenian Genocide: A History of Sorrow

By RICHARD OHANIAN

April is the month of mourning for Armenians around the world. On April 24, nearly every Armenian remembers the loss of a family member in Turkey. Some 1.5 million Armenians were systematically massacred during the years of 1915 to 1923 in their homeland, western Armenia. This barbarous crime was the first genocide of the 20th century, the Armenian Genocide.

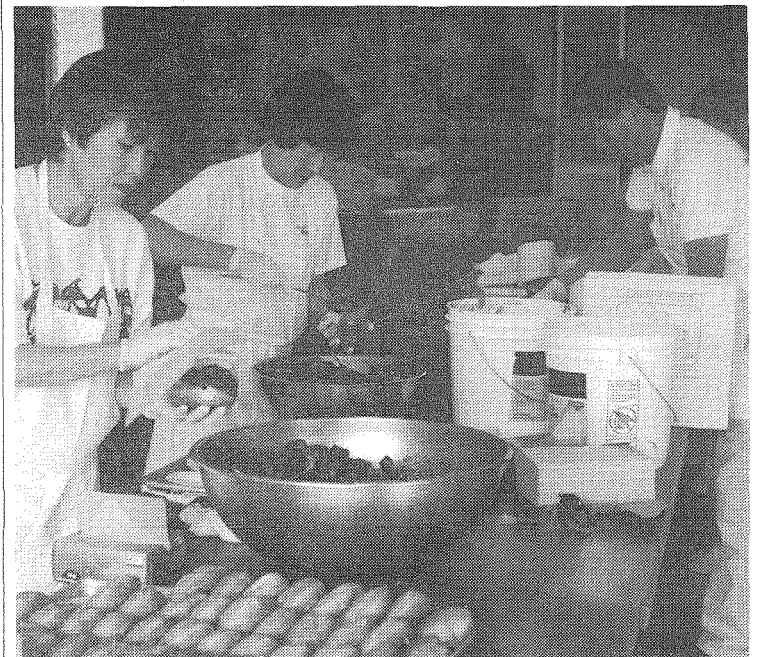
But who are Armenians and why was their fate so tragic? Armenians are an ancient nation with a rich heritage. 2500 years ago, Darius the king of the Iranian Empire conquered a region on the north west of his territory. He was so happy of his victory that he ordered the event to be carved on a stone hanging on one of the walls of his

palace in Persepolis, noting that he captured Armenia.

Many scholars believe that Armenians were living in the region between the Caspian, Mediterranean and Black Seas for more than 3500 years. This region later was called Asia Minor. Armenians have their own language and their own alphabet. The Armenia alphabet is 1500 years old. Armenians were also the first nation who officially accepted Christianity in 301 A.D. and kept their own independent church for centuries to come. They have their own country, which declared its independency in 1991 from the former Soviet Union. All that remains of historic Armenia is a country of 30,000 square feet, which is in the mountainous region of

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PHOTO OF THE WEEK



P. Dormiani/The California Tech

Jim the doughnut man, burying berries in jelly to create the coveted strawberry doughnut.

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Certified shaker

Certified no more mac & cheese

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CRIPPLING REFLECTIONS



FROSH CAMP!!

LATE NIGHT STUDYING

FIRST TFM MEAL

SI FUN

GLOMMING!

REJECTION!

SLEEP...

CHEM 3 CHAOS!

12 UNIT GIRLFRIEND

THE OTHER "GIRLFRIEND"

DITCH DAY!!

GRADUATION!

LEADERSHIP

THE END

Armenians Still Continue To Suffer From Past Genocide

Continued from Page 3, Column 5

Caucasus in eastern Anatolia.

Armenia is the neighbor of Turkey, Iran, Georgia and Azerbaijan. The total number of Armenians throughout the world exceeds seven million with some three million living in modern Armenia, about one million living in the former Soviet Union republics and some one million more living in the U.S. Armenians now live in a flourishing diaspora from L.A. to Beirut and Brasilia to Sydney. The main reason of this scattered population of Armenians is the series of attacks and campaigns they experienced during centuries that forced them to leave their homeland. The most disastrous of those campaigns was the Turkish annihilation program against the Armenians from 1915 to 1923.

For centuries, Armenians were part of an assortment of different empires. Historic Armenia was located in such a strategic and geopolitically important region that every leader had a great desire to have it under its control. Iranians, Russians, Arabs and Ottomans took turn in attacking and conquering Armenia. In the seventh century A.D., Islam swept the region. Armenians resisted the new religion and meanwhile lost many of their own due to constant attacks by Arabs forcing them to convert. By the eight century, due to the spread of Islam in the region, all that remained of Armenia was a small Christian island in an Islamic sea. This was the beginning of a period of a series of invasions.

The first invasion was launched by Seljuk Turks, a tribe which was migrating west from Mongolia in central Asia. The Seljuk Turks, which had just recently converted to Islam, raided Armenian cities and towns, killing and pillaging. The Seljuk Turks and subsequent Turkish tribes which moved into Anatolia did not leave the region since it was well suited for their people and lifestyle. They arrived with their families, flocks and everything else. These migrated Turkish tribes of central Asia later became the foundations of the Ottoman Empire.

Between the 11th to 15th centuries, group after group invaded the Armenian Plateau. Persians, Mongols and Tatars took turn in destroying whatever was left after Turkish invasions. Armenians lost many lives, but the core of Armenia remained Armenian. The emergence of the Ottoman Empire in the 15th century subdued the Armenians under Ottoman rule. Unlike the other conquerors, the Muslim Ottomans allowed the Armenian, Jew and Greek minorities a limited freedom, which actually resulted in some flourishing of their cultures. These minorities were under a system called the Millet system. In this hierarchical system, Turks were on top ruling the rest of the ethnic minorities, the Millets, which could have some limited freedom in their internal affairs. As long as the Millets were willing to pay high taxes to the Turks, they could have their own quarters, they could marry each other, have their own businesses and practice their religious ceremonies.

The Millet system lasted for 500 years. Although the Armenians and Turks did not quite live in harmony with each other, the Turks referred to Armenians as loyal citizens of the Empire. Armenians were successful in business, they had their own political parties and their ranks even included some members of Ottoman parliament. But towards the end of the 19th century, the Ottoman Empire began to decline and the prosperous Armenians began to lose their status. The last Emperor, Sultan Abdull Hamid killed almost 300,000 thousands Armenians during the last decade of the 19th century. The reason was that Armenians were fed up by the high taxation system and like many other European nations who were demanding their independency from the Ottomans, Armenians also were demanding some autonomy.

By the early 1900s a new regime took control of the Ottoman Empire—a revolutionary party of modernized militants called the Young Turks. The party was governed by three men: Jamal, Enver and Talyat Pasha. This new extreme nationalist party started to govern the Empire in 1908. They had a unifying and progressive vision toward expansion of the country eastward. They envisioned a Pan-Turkey state expanding from Istanbul to central Asia including all Turkish tribes of

region. This move, of course, was against Armenians both in the Ottoman Empire and in the Russian Empire.

As the First World War started, the Young Turkish government started a war with Russia. The front line was exactly in Armenia. Eastern Armenia at that time was under Russian control whereas Western Armenia was under Turkish rule. Caught up between two forces, the Armenians in the east sided with the Russians, while those in the west supported the Ottomans. But since some Armenians were fighting against Turkish troops—and therefore other Armenians, since there were Armenians on the Turkish side—the Turkish government feared that Armenians in the Empire would join the Russian enemy. This was a good argument and excuse to launch a massive campaign against the Armenians. The entire Armenian population in western Anatolia was uprooted and through a systematic plan annihilated in a very short period of time.

On April 24, 1915, some 300 Armenian intellectuals, university professors, writers and doctors were arrested and executed. The Armenians who were serving in the Turkish army were executed. Men of the towns and villages were summed up and shot some few miles away from their homes. Women and children were moved out of their cities and towns and directed to deserts and were left to die. Hundreds of thousands died of starvation and attacks by Turkish and Kurdish brigades. The Armenian deportation was started.

The authorities claimed that the population was moved to a new location to be safer from the war but that was only an excuse. The annihilation plan was to deport Armenians from their towns and villages and kill them on the roads in the deserts. Some 1.5 million Armenian died over those years. And this was the first genocide of the 20th century.

Many American and European eyewitnesses reported the atrocities that took place during that terrible era. Lesley Davis, the U.S. foreign consul in the Turkey from 1915 to 1917, documented everything he saw. His documents are still kept in Washington. The Turkish government today still denies the genocide charges. Most historians, however, presently call on the Turkish government to accept the truth. Many countries also officially recognize the Armenian Genocide. France, Russia, Greece, Argentina and the EU parliament are on the list. One of the main reasons that Turkey is not being accepted as an EU member is because they have yet to accept the charges of genocide committed by the Turkish government. Unfortunately, the U.S. government does not officially recognize the Armenian Genocide since it does not want to lose a strategic ally in the region.

Some encyclopedias claim that the Armenian deaths were around 600,000, but the numbers do not matter since the responsibility still holds. The Turkish government would do itself a favor to accept the charges. A nation cannot live with such stains on its history. Armenians demand justice and they will continue to do so until the proper reparations can be made and they are returned their historic lands of western Armenia. It is sad that the symbol of the Armenians, the Ararat Mountain, on which Noah's arc landed, is no longer in Armenia, but is in Turkey.

Question of the Week

Is the U.S. justified in its failure to officially recognize the Armenian Genocide?

Better Luck Tomorrow Falls Short in Emotional Value

Ethnic Twist to Tale Displays Director Lin's Talent

By TERRY YEN

A classic tale with an ethnic twist, Justin Lin's second film, *Better Luck Tomorrow*, his debut being the torpid *Shopping for Fangs*, is superficially entertaining with an attractive, capable, talented cast, but lacking, unfortunately, a single authentic emotional moment. Portraying a stereotypical group of too-bright-for-their-own-good, bored, over-achieving Asian teens fallen prey to criminal activity for kicks and buzz, Lin's got the right materials to build a masterpiece; what he needs is much more powerful duct tape.

Set in a placid Orange County wonderland of gated communities with perfectly pruned lawns, shipshape paved roads and economic privilege to the wazoo, Lin opens stealthily. He has his sweet-faced cutie-pie hero, Ben (Parry Shen) and his comic relief tight pal, Virgil (Jason Tobin) sunbathing peacefully in the backyard until at the twittering of a cell phone, they crawl along the grass and dig up dirt to reveal the hand of a dead corpse. This discovery pitches us into the topsy-turvy, open-ending tale of moral inquiry that began

four months back.

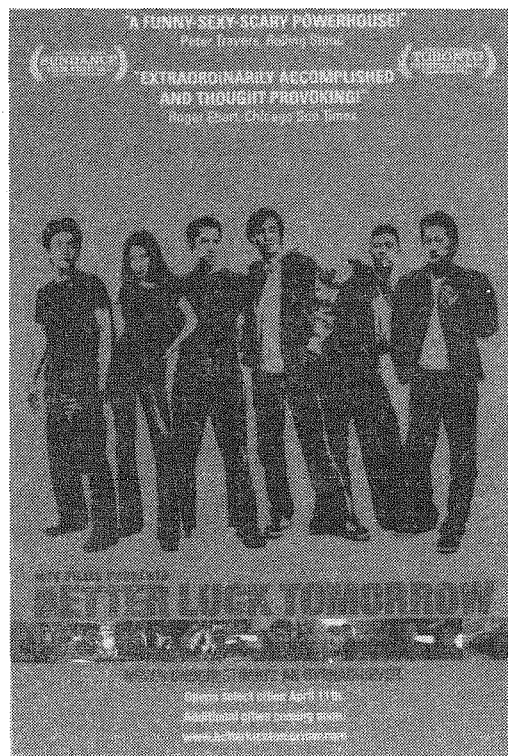
The main posse, made up of high school seniors Ben and his friends Virgil, Han (Sung Kang) and Daric (Roger Fan), carry out an elaborate secret thrill-seeking existence through academic fraud, selling classroom cheat sheets, theft, handling stolen goods and drug dealing. And yes, they do all have pretty impressive guns. Yet even as Ben feels empowered by his new street modes, he suffers from an unrequited crush on the only female character of note, Stephanie (Karin Anna Cheung), who is romantically attached to the jaded, self-involved prep school rebel-without-a-cause Steve (John Cho). Lin aims for a radical breakthrough, but the film quickly subsides into a lurid fantasy life removed from any personality or perspective.

The storyline stresses actions rather than ideas, hence giving the feeling of redundancy and monotony. We see scenes of the characters pulling desperate, bold feats of delinquency off with no consequent social concern and as a result, plunging deeper and deeper into their own emotional ecstasy.

The movie was released more than a year after its premiere at the Sundance Movie Festival. Its distributor, MTV Films, reportedly had to soften the original ending that had the Sundance audience disturbed. Though still violently strong, it isn't the ending that's the problem, but Lin's inability to face up to the bitter amorality he is trying too hard to depict. He spends all his time building up to something that just peters out as some act of shocking and strange retribution.

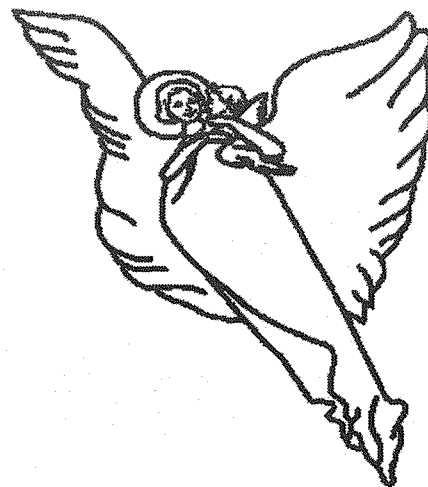
Though the script had some corny dialogue with phrases as "you can get away with anything if you're clever enough" or "We don't have to play by the rules. We can make our own rules," the periodic presentation of SAT "words of the day" at the bottom of the screen added flair, apt thematic value and subtle accentuation of character traits.

Naturally, we see no parents. We also see no meaningful context for the group's alienation in school. *Better Luck Tomorrow* is a work of new talent that has a feeling of emptiness flowing throughout the movie.



Courtesy of Ben Lee

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Attention all undergraduate students on financial aid: The last date to request any change to your 2002-03 financial aid award is Monday, May 19, 2003. Requests for 2002-03 changes made after May 19, will not be considered. Please contact the Financial Aid Office at extension 6280 if you have any questions. NOTE: graduating seniors must request any change by May 5, 2003.

On behalf of the Institute's ongoing commitment to diversity, a committee has been formed to initiate discussion and increase awareness about the value and meaning of diversity at Caltech. In order to capture the many different voices represented on campus, we will be providing multiple ways for individuals to provide us with feedback. We will be using this information to write a more inclusive Diversity Statement for Caltech. We will be holding focus groups during the month of May and encourage you to sign up to be a part of this important discussion. The deadline to respond is May 6. If you are interested in participating, please provide the following information and e-mail it back to machang@caltech.edu.

Name, E-mail, Phone Extension.
Mark with an "X" the category you belong to: Faculty ___ Undergraduate Student ___ Graduate Student ___ Postdoctoral Scholar/Researcher ___ Staff ___

Mark with an "X" any preference you might have for a specialized focus group. If you do not have a preference you will be invited to join a general focus group: Undergraduate Male ___ Graduate Male ___ Female (Undergraduate & Graduate) ___ Multicultural Students (African American, Latino, Native American, Pacific Islander and International) ___ Asian American Community ___ International Community ___ Lesbian, Gay, Bisexual and Transgender Community (Gay Pride) ___

Caltech Blitz Chess Championship. Quick and fun for everyone! On May 9th, the Caltech Chess Club will host the first annual Caltech Blitz Chess Championship. It is open to the entire Caltech community and to all levels. There will be special prizes for novices. Come play chess and enjoy the thrill of competition for a couple of hours! Details: Friday, May 9th 2003, 8 - 11 p.m.; Page House Dining Hall; 6 rounds, two games against each opponent; 5 minutes per player per game. Overall prizes: \$100, \$75, \$50. Novice prizes: \$30, \$15 (Novice prizes are for people who either have never played in a rated chess tournament, or have a rating lower than 1600.) More info: Wei Ji Ma, ma@klab.caltech.edu.

Women's Center Events
Traveling Safety Workshop: Tuesday, May 13, 12:00pm-1:00pm; This class is designed to help travelers recognize safe and unsafe traveling habits and behaviors, while also providing some self defense tactics.

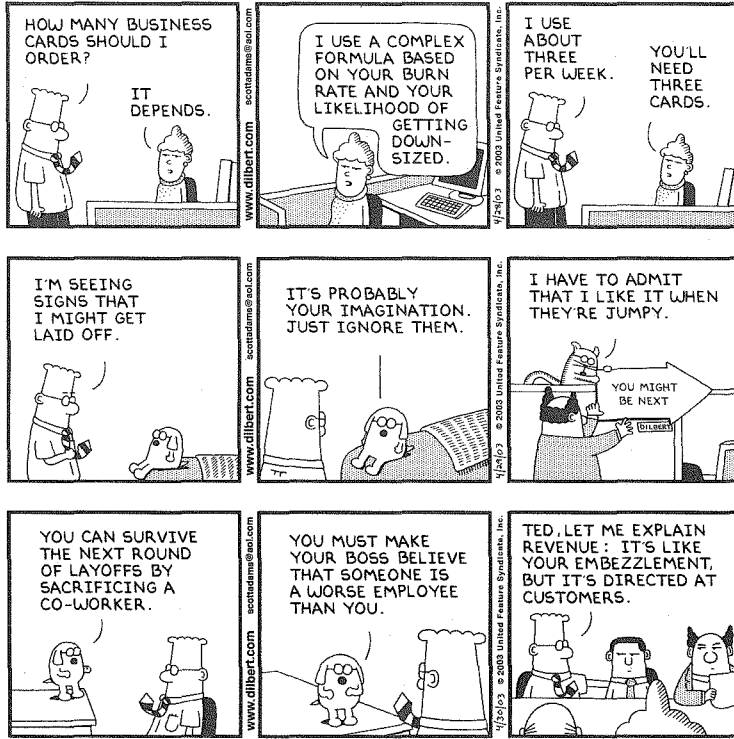
Reel Women Series: Minerva's Machine: Women and Computing; May 14, 12:00-1:00pm; Celebrates the history of women in computing and profiles successful women in the field today. The film demonstrates the diversity of women in computing and shows the many ways to be successful. It explores why there are fewer women in computing and other ways to bridge the computer gender gap. The films are shown in the second floor common area of the Center for student services. Pizza and drinks Provided.

Folk Music Society. Sparky & Rhonda Rucker, from Maryville, Tennessee, sing and play guitar and harmonica and banjo. They play Appalachian music, old-time blues, slave songs, Civil War music, gospel, work songs. Sparky is a fine singer and this will be a great opportunity to hear some blues-drenched music from an African American perspective. The concert is at 8:00 PM on Saturday, May 10 in Dabney Hall Lounge. You can get tickets in advance (\$5 for students) at the ticket office, or at the door. Or contact rmayreis@earthlink.net

The Mathematics Department is pleased to announce a prize to be offered again this year to Caltech undergraduate students.

The Morgan Ward Competition. Any Caltech freshman or sophomore may enter this contest. An entry may be individual (submitted by one student) or joint (submitted by a group of two or more students). Each student is entitled to at most three entries, of which two may be individual. An entry is to consist of a mathematical problem, together with a solution or significant contribution toward a solution. The problem may have any source, but this source should be stated in the entry. The entries may be judged on the basis of the nature of the problem, originality and elegance of the solution. Any outside references used should be indicated. Entries from each contestant or group must be placed in an envelope and delivered to the Mathematics Office, 253 Sloan, by May 2. The names of the contestant, or the names of all participants in the case of a joint entry, must be written on the envelope only, not on the entry. The Judging Committee will consist of three undergraduates. The judges will select a group of finalists and submit their entries to the mathematics department faculty who will make awards to the winners. Prizes will ordinarily be awarded for the 2 to 4 best entries, the value of each prize being \$75. Prizes for individual entries will be limited to one to a contestant and no group may receive more than one prize.

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Collaboration: Keystone Of Successful Decisions

Students Benefit From 'Unique Administrative Structure'

By TED JOU

Over the next week or so, the undergraduate student government will be interviewing and appointing representatives for various committees of campus-wide importance. Currently, this involves 66 students on 20 different committees; the body of committee representatives outnumbers ASCIT officers and is larger than any House government. There are many schools with honor systems, and there are even schools with comparable housing arrangements, but the privilege afforded to the student body in these committees is unparalleled.

Students read freshman applications and participate in admissions decisions. Students vote on reinstating students who become academically ineligible. Upperclass merit award applications are read by students and they vote on the recipients. When tuition was raised this past year, students sat on the committee that reviewed and approved the amount. When changes in health insurance were being discussed last year, students helped review consultant reports and helped write a set of recommendations sent to President Baltimore. When the P/F policy was changed this year, students participated in the discussions. Students preview and help choose the performances that are held in Beckman Auditorium each year. A student currently sits on the committee trying to decide what public art piece will replace *Vectors*.

There are other institutions where students participate in some of these activities, but at none of those universities do the students have the sovereign power to choose their own representatives. At most schools, the admissions office will pick and choose its own students, the deans will nominate exceptional students for various positions, or administrators will conduct the interviews.

At Caltech, student leaders do the interviews and no administrator tells us whom we can or can not have on a committee. The privileges of student representation at Caltech are truly unique, and are an integral part of the tradition of student self-governance at Caltech.

Compared with the traditions of the honor system and the student houses, committee representation is a rather new phenomenon. The roots of our current system can be

traced back to April 19, 1967. On that day, the newly elected ASCIT President Joe Rhodes called a Corporation meeting. Four hundred students gathered in Beckman Auditorium and passed several important resolutions. One of the resolutions asked for student representation on all faculty committees that were relevant to student life. The Faculty Board accepted the proposal soon after and the undergraduate student body was soon placing representatives on 15 separate committees.

It's not just the student aspect of committees that is unique. The fact that Caltech is run by so many committees is indicative of a rather unique administrative structure. Although we like to berate "the administration," there is no single entity we can blame for all our troubles. The Caltech administration is relatively small in comparison to the \$2.5 billion in assets that they manage. Just as we have more homework than we can finish alone, the administration has more under their control than they can possibly pay close attention to. Their solution is the same as ours: collaborate. Committees of students and faculty give their opinions and contribute their time to play an integral part in the functioning of this Institute.

Students see this system and believe that we have some sort of unalienable right to be involved in every decision, but we would be hard-pressed to find this guarantee on paper, and this is certainly not the case at other schools. The truth is, things are handled this way more out of necessity than principle. The administration collaborates with us because we have something to offer. We are smart, responsible individuals, and we often care more about these issues than faculty or administrators do.

This past election season, more students ran for ASCIT offices than ever before. I urge those students who may not have won elected offices to sign up for committee positions outside SAC 33. These are the front lines of student-faculty-administration relations, and the student body needs responsible people to represent their views. Although it is one of the newest aspects of student government at Caltech, it is quickly growing to be one of the most important.

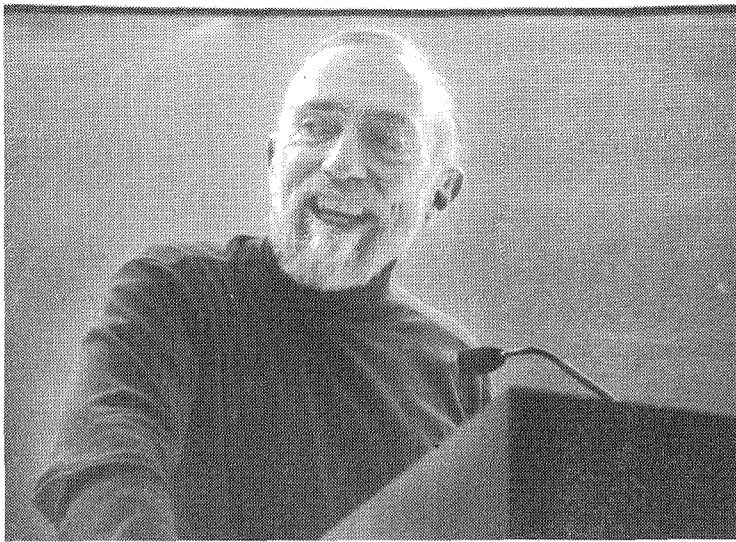
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Physics Professor Kip Thorne speaks at an event geared toward introducing prefrush to the quiddities of Caltech.



A band plays as part of an entertainment-oriented Prefrush Weekend concert.

Despite Flu, Trimmed Weekend Introduces Candidates to Caltech

Continued from Page 1, Column 4

ture golf on the Ruddock Greens, played a game of capture-the-flag organized by Lloyd, gambled at Casino Night in the Fleming Lounge and danced at Club Ricketts in the Ricketts Courtyard.

To further introduce the prefrush to student life, they ate dinner in two different houses. The family style dinners are an element of Caltech life that is unique to this school and the difference in each house's dinner is easy to see. Many prefrush seemed stunned by the crazy dinner traditions that they witnessed, even though they were told that the dinners were probably exaggerated for effect.

While the prefrush had a great time, many current students are still unhappy about the administration's handling of the event this year. This prefrush weekend was surrounded in controversy, due to both the initial decision to host prefrush in Avery, which was later rescinded and the decision to cut prefrush weekend by one day, which was made last year by the administration for budget reasons. Some students, like Inter House Committee Chairman Jeremy Pitts '04, who said, "If they were to cut a day, I would have told them to cut Thursday."

He further pointed out the importance of the activities that were traditionally held on Saturday, such as the carnival. Shortening the weekend forced a lot of the activities to

get squashed into two nights, when many students are busy with work. Fortunately, Pitts and the Interhouse Committee were successful in negotiating extensions until Monday for Core problem sets.

Another issue that was finally resolved was the initial decision to host prefrush in Avery. According to both Pitts and Avery House Representative to the Prefrush Weekend Committee Jim Pugh '03, this decision originated in problems with the quantity of willing hosts last year, but that hosts in Avery were not needed this year because fewer prefrush came. According to Pugh, "The idea of Avery hosts was to alleviate the shortage of hosts from last year, however, that, along with the shortening of Prefrush Weekend felt like a slap in the face from the administration to a lot of students."

Before it was made public that prefrush would not be hosted at Avery unless there were not enough hosts in the Houses, much heated debate went on about whether prefrush hosted in Avery would get an accurate impression of life at Caltech, since freshmen can't live there until their third term and house culture is an important part of life at this school. However, Pugh pointed out that "an important question is whether prefrush in the seven houses get an accurate impression [of life at Caltech]." He also said that if prefrush were to be hosted in Avery in the future, "there should be a critical mass of prefrush in Avery so they're not isolated, since Avery is far from the seven houses."

Another concern was the stomach flu that went around campus during prefrush weekend. The prefrush, however, did not seem too concerned after assurances from the seniors that this is the first time they saw something like this happen during their four years at Tech. Some health measures were taken, such as providing crackers and Gatorade to all students who felt ill and providing serving implements to reduce transmission of the virus. We can only hope all the prefrush went home healthy.

The prefrush, as well as their hosts, seemed to have a wonderful time at all the activities, although they were pushed into a smaller time frame than they have been in previous years. The activities that they participated in undoubtedly allowed them to meet people they will remember and will help them make an informed decision about which college they attend.

PROF. SIMON DETAILS CELL SIGNALLING

TRAVELS 'BEYOND THE GENOME'

Alliance Signalling Project Reaches Midpoint

By ROBERT LI

Last Tuesday morning, Professor Mel Simon gave the monthly Beckman Institute seminar.

In his talk, entitled "Beyond the Genome," Dr. Simon discussed the motivations for and the current state of the Alliance for Cell Signalling project.

The Alliance for Cell Signalling was started in 2000 by Dr. Simon and his colleagues across the country with the overall goal of understanding as completely as possible the nature of cell signalling and relationships between sets of inputs and outputs in signalling cells that vary both temporally and spatially. Specific goals of the project include differentiating between ligands, defining signalling circuits and modules and deducing the logic and principles of cell signalling systems.

This will involve identification of all the proteins that comprise the various signalling systems, the assessment of time-dependent information flow through the systems in both normal and pathological states and finally the reduction of the mass of detailed data into a set of interacting theoretical models that describe cellular signalling.

The alliance also seeks to "derive, test and verify quantitative models of complex systems."

According to Dr. Simon, the project is currently at the halfway point with over 4000 signalling molecules and genes identified. Dr. Simon said communications within the alliance are good and that it has been surprisingly easy to convince people in the alliance to give up any intellectual property claims on their discoveries.

Unexpected problems have risen, however and most pressing of these is the inability of the bioinformatics part of the project to keep up with the rate of discoveries.

Dr. Simon is an Anne P. and Benjamin F. Biagini Professor of Biological Sciences.

The alliance is sponsored by the government and by the pharmaceutical industry. The Nature Publishing Group is also a sponsor and maintains a Signalling Gateway portal online where new results are announced.

The Changing Times: Comings and Goings

By JEAN-PAUL REVEL

As I walked to my office a little before eight last Thursday the Admissions Office people were already out setting up tables, easels, boxes of badges, installing banners and festooning the place with balloons, all final touches in their preparations to receive visiting students on prefrush weekend.

All around one could sense the urgent thoughts, "The prefrush are coming!" "Very soon we'll have a first look at all those prospective students with whom we'll share Caltech for the next four years" "What's the class of '07 going to be like?" "How many will register?" "Where will we find all the pianos?" I understand that there is an unusually high number of pianists in this year's batch of applicants.

As I entered the building I heard someone—one of those administrators, likely—grousing about the newly established grass being trampled. Too bad for the grass thought I, too bad, but then nothing is too good for our visitors. It was not very serious grumbling besides; it sounded pro forma; what good is an administrator who does not complain about something?

And then, at lunch on that day, it was time to honor some of our most extraordinary students, juniors and seniors now, who arrived here themselves on a similar prefrush quest, three-four years ago. They were being lemonaded and lunched—I could not say wined and dined, could I?—for their achievements while here. About some of these awards you will hear again at Commencement when the Mabel Beckman and the Hinrichs awards are handed out and there will be announcements about the Froehlich, the Noland, the Green and the Sigma Xi and more, you'll hear about later. This time the recognition goes mainly to some of the many students who have made a difference in the lives of all of us by their service to the community

and are awarded the Bibi Jentoft-Nilsen, the Doris Everheart, the Dean's cups, the Residence Life and Master's awards. Amusing to try to figure out who among the maybe freshmen will be the awardees of '06 or '07?

News Analysis

Congratulations, winners and thank you for all the good work. But as I do so it is hard not to think about the prospective students who might somehow stumble or fall, succumb to the pressures of this place. It is the sad fact that some of these bright eager new faces will someday be called to appear in front of the Board of Control. Yet not a single one of the people who end up being seen by the BoC needs to cheat or to plagiarize in order to look good. The mean SAT of the incoming class is up there in the stratosphere, 779 for Math and 787 for Math IIc, >760 in every subject except Verbal and Writing, with 742 and 747 respectively. They are the most capable group of students that can be found anywhere. None of them needs to cheat to make it. No one. On top of it all, this is not a cutthroat place. Of course that does not mean that students are not sometimes insecure, worry about their performance and are afraid of not being as good as their roommate or that fellow in that other house or that robot with an iron discipline who does not let herself be distracted until the job is done.

I recently did ask, "what made you do it?" to someone who had to see the deans because he had sinned against the honor code. Why copy from someone else when you can get an A for your work on your very own? "Well, doc," was the answer, "I just can't stand not being the best." But how do you know that that student you copied from had it right? Why do you think that the copyee has a better chance to be right than you, the copier? "Well, they had already finished the work so they could have worked on it more if they had to and besides they go to the lectures and recitations, I don't have the time."

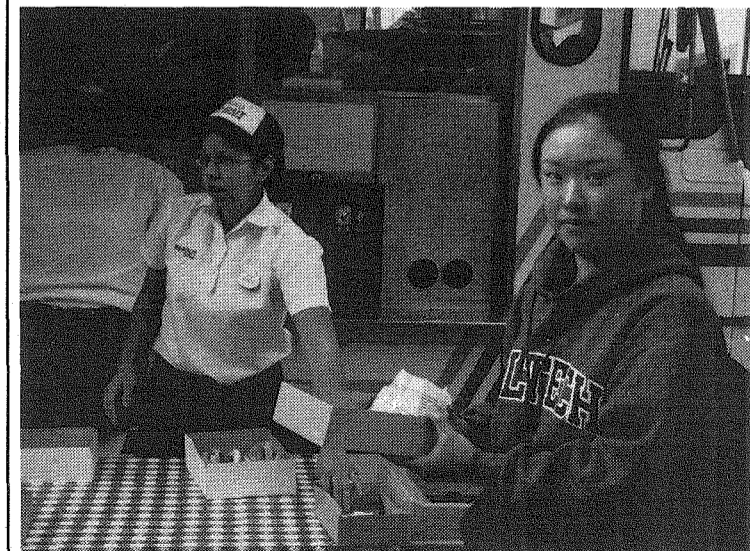
I ask you, reader, does that sound reasonable to you? What's the cheating student here for, to learn something he did not know, or make believe he knows what he does not? Besides taking advantage of his classmates—well, assuming his choice of copyee to be good enough to copy from—he is actually also shortchanging himself by not learning what he is here to learn about. When push comes to shove making believe that you know won't help you solve the real problems you will encounter. It just means that your shortcomings will catch up with you later.

I always worry about cheaters. It is part of my job and it is so hard to know how big a problem it is. All I can really muster is the fact that there does not seem to be any systematic increase in the number of cases reported over the years. Comforting? Perhaps and so are the expressions of confidence in our Honor Code that the students express. But then there are those cases of pirating of music or movies that I deal with; are they not a form of cheating, are they not breaches of the very same Honor Code? Are they an indicator that things are not well?

Should one be concerned by the reports from Harvard, a place where, like here, students can run rings around most ordinary folk. Z. Podolsky writing in *The Harvard Crimson* of Dec 5, '02, discusses CS 50 "their computer science introductory course... one of the few Harvard classes that, using special software, automatically checks all assignments for plagiarism. Because of this practice of checking every student's work, CS 50 manages to garner, its web site reports, an 'extraordinarily high percentage of the cases of undergraduates required to withdraw from Harvard College for disciplinary reasons.'" Podolsky implies that this means a large number of students do cheat there... hmmm... does that mean anything for us?

A bientot

IN 'N OUT, BURGERS AND DOUGHNUTS



Ann Leu '05 grabs a hamburger from the In 'N Out truck parked on the Olive Walk last Tuesday at Caltech's annual In 'N Out dinner night.

BoD Earmarks \$2,000 For 'Special Events'

Continued from Page 1, Column 2

exists and a proposed list of events and corresponding budget for the coming year.

Each club is also given a five-minute time slot during the club budget meeting for an interview, in which a representative presents the proposal and answers any questions the BoD may have. Lacking information from previous years, new clubs are highly encouraged to present a mission statement and the signatures of its members.

Once the registration and proposal criteria are met, the ball is in the BoD's court and the "touchy-feely" process begins. Despite the lack of a formula, the various BoD members do have some specific things they like to see in a proposal. Zygourakis, in detailing her personal criteria, which represent the view of a number of BoD members, noted that, "we want to see that the club is active, doing something for its members and maybe even the community as a whole. It's important that we see specific events planned for the next term."

Indeed, specificity in a proposal seems to be very important. Fletcher explained that "a poorly thought out, nonspecific, wishy-washy proposal" was one of the main reasons that certain clubs did not receive funding.

In addition to deciding specifically how much to give to every club, the new ASCIT BoD had to come to agreement on general funding philosophy and in the process made some important changes. Fletcher emphasized that his BoD abandoned the unwritten philosophy of not funding capital goods.

"The alumni and grad students aren't interested in funding tangible things. They would pay for the figure skating team to fly to a national competition, but they wouldn't buy them new skates, for example. We just couldn't explain that; the juggling club needs new clubs!" exclaimed Fletcher. Zygourakis added that the BoD "talked about the kind of things ASCIT should or shouldn't fund. The policy of not funding political organizations, for example, was thrown out. That decision was based partly on our be-

ing able to remain tax exempt."

The BoD also decided to plan for potential changes to the club's various needs during the year. Last year's FDAL and current UDAL Andrea Vasconcellos '05 explained that "this year, the BoD decided to give less to clubs, but to create a bigger 'club fund,' which is a pot of money that is not specifically earmarked, so that any club can ask for additional money."

It was felt this would be a better policy so that more active clubs, which need more money, can benefit further or those that make it to nationals, for example, can request additional funding." Indeed, the BoD held on to \$2,000 in the form of its "special club events" fund.

Recent campus events and conflicts between the undergraduate population and the administration also entered into the BoD's philosophy deliberations.

Fletcher pointed out that "the administration challenged us to find positive ways of focusing undergraduate energy; we felt that clubs might really have the potential to

improve the quality of life on campus." In light of this, the BoD toyed with different funding schemes. Fletcher added, "One of the considerations was how we could maximize the impact of the money. Should we fund a few clubs a lot or should we give a little money to a lot of different clubs?"

In the end, "we funded a lot of clubs that didn't exist before and some that had not been active in a long time," as well as many established clubs, Fletcher noted.

After all was said and done, \$12,606 of ASCIT's \$62,856 budget was allocated to clubs, including the \$2,000 for special events and activities. The most heavily funded club was Caltech Christian Fellowship, receiving \$501, followed by Building Bridges and the Caltech Dance Troup, receiving \$450 and \$420 respectively. Each club will receive, if it hasn't already, a personalized e-mail detailing the amount of money it will receive, what the BoD hopes the money goes to and suggestions regarding the club's proposal.

Biologist Mary Kennedy To Plan Brain Research Effort

By ROBERT TINDOL

Biology Professor Mary Kennedy has been named project director for a \$4 million federal project grant to better understand how the brain processes signals. Progress could lead to new insights into how drugs can be better custom-designed to treat a host of neurodegenerative disorders, mental illnesses and disabilities, including Alzheimer's disease, depression and schizophrenia.

The funding will come from the National Institute of Neurological Disorders and Stroke, a component of the National Institutes of Health (NIH). According to Dr. Kennedy, who is the Allen and Lenabelle Davis Professor of Biology at Caltech, the five-year project is innovative because it will integrate advanced computational methods with experiments to better analyze and model calcium signalling in the brain.

In addition to Dr. Kennedy's re-

search group at Caltech, the program will involve research teams from the Salk Institute, Cold Spring Harbor Laboratory and the University of North Carolina.

"Another aspect of this research that is quite new is the application of these kinds of methods at the molecular level," she said. "This is important because, for about 20 years or so, it wasn't really possible to be rigorously quantitative about the biochemical functions of synapses at the molecular level. This was because we didn't know all the molecules that were involved."

With new advances, especially the completion of the Human Genome Project, it is now time for a new phase in research on the molecular mechanisms of brain functions, according to Dr. Kennedy. In addition to basic improvements in knowledge of how brain signalling works, the research program could also lead indirectly to pharmaceutical advances such as treatments for disorders originating in the brain.

"Neurological and mental diseases result, in part, from derangements in regulation of synaptic transmission," Dr. Kennedy said. "In a type of neuronal structure known as dendritic spines—so named because they sort of look like spines—calcium influx through a certain type of receptor is a principal regulator of synaptic strength, or plasticity. Thus, calcium can lead to increases or decreases, of varying durations, in synaptic strength."

The program includes four projects and a core that will provide new computer software. One project will use a computer program called MCell to develop and test models of calcium dynamics in spines. Another will rely on microscopy to study the organization of calcium sources and sinks in spines, as well as calcium distribution. A third, which will be centered in Dr. Kennedy's lab, will develop and test kinetic models of enzymes regulated by calcium; and a fourth will use advanced imaging techniques to measure calcium signals and their regulation in individual spines.

The program will be highly interdisciplinary, Dr. Kennedy said. Three physicists will be among the team members in her lab. Work at the other institutions, as well, will involve specialists from disciplines outside biology, making for a unique mix of talent from the scientific and humanistic pursuits.

"Once we have a better quantitative understanding of signalling, it will be possible to ask much 'cleaner' questions about what kind of drugs will treat certain conditions and under what circumstances," she said.

Mary Dr. Kennedy is the Allen and Lenabelle Davis Professor of Biology and recently was also one of five Caltech faculty members elected to membership in the American Academy of Arts and Sciences.



The ASCIT BoD convenes for another Wednesday meeting on the Olive Walk. They recently completed the 2003-2004 ASCIT budget, which also included \$12,606 allocated to Caltech clubs.

Astro. Team Tracks New Evidence of Forming Stars

By ROBERT TINDOL

New distance measurements from faraway galaxies further strengthen the view that the strongest burst of star formation in the universe occurred about two billion years after the Big Bang.

Reporting in the April 17 issue of the journal *Nature*, California Institute of Technology astronomers Scott Chapman and Andrew Blain, along with their United Kingdom colleagues Ian Smail and Rob Ivison, provide the redshifts of 10 extremely distant galaxies which strongly suggest that the most luminous galaxies ever detected were produced over a rather short period of time. Astronomers have long known that certain galaxies can be seen about a billion years after the Big Bang, but a relatively recent discovery of a type of extremely luminous galaxy—one that is very faint in visible light, but much brighter at longer wavelengths—is the key to the new results.

This type of galaxy was first found in 1997 using a new and much more sensitive camera for observing at submillimeter wavelengths, longer than the wavelengths of visible light that allows us to see, but somewhat shorter than radio waves. The camera was attached to the James Clerk Maxwell Telescope (JCMT), on Mauna Kea in Hawaii.—

Submillimeter radiation is produced by warm galactic "dust"—micron-sized solid particles similar

to diesel soot that are interspersed between the stars in galaxies. Based on their unusual spectra, experts have thought it possible that these "submillimeter galaxies" could be found even closer in time to the Big Bang.

Because the JCMT cannot see details of the sky that are as fine as details seen by telescopes operating at visible and radio wavelengths and because the submillimeter galaxies are very faint, researchers have had a hard time determining the precise locations of the submillimeter galaxies and measuring their distances. Without an accurate distance, it is difficult to tell how much energy such galaxies produce; and with no idea of how powerful they are, it is uncertain how important such galaxies are in the universe.

The new results combine the work of several instruments, including the Very Large Array in New Mexico, the world's most sensitive radio telescope, and one of the 10-meter telescopes at the W. M. Keck Observatory on Mauna Kea, which are the world's largest optical telescopes. These instruments first pinpointed the position of the submillimeter galaxies and then measured their distances. Today's article in *Nature* reports the first 10 distances obtained.

The Keck telescope found the faint spectral signature of radiation that is emitted, at a single ultraviolet wavelength of 0.1215 micrometers, by hydrogen gas excited by

either a large number of hot, young stars or by the energy released as matter spirals into a black hole at the core of a galaxy. The radiation is detected at a longer, redder wavelength, having been Doppler shifted by the rapid expansion of the universe while the light has been traveling to Earth.—

All 10 of the submillimeter galaxies that were detected emitted the light that we see today when the universe was less than half its present age. The most distant produced its light only two billion years after the Big Bang 12 billion years ago. Thus, the submillimeter galaxies are now confirmed to be the most luminous type of galaxies in the universe, several hundred times more luminous than our Milky Way and 10 trillion times more luminous than the sun.

It is likely that the formation of such extreme objects had to wait for

a certain size of a galaxy to grow from an initially almost uniform universe and to become enriched with carbon, silicon and oxygen from the first stars. The time when the submillimeter galaxies shone brightly can also provide information about how the sizes and makeup of galaxies developed at earlier times.

By detecting these galaxies, the Caltech astronomers have provided an accurate census of the most extreme galaxies in the universe at the peak of their activity and witnessed the most dramatic period of star buildup yet seen in the Milky Way and nearby galaxies. Now that their distances are known accurately, other measurements can be made to investigate the details of their power source and to find out what galaxies will result when their intense bursts of activity come to an end.

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